

BULLETIN No. 110

**Index and List of Titles, Publications
of the Fisheries Research Board
of Canada, 1901-1954**

Prepared by

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N. M. CARTER

Editors

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Bulletins of the Fisheries Research Board of Canada are published from time to time to present popular and scientific information concerning fishes and some other aquatic animals; their environment and the biology of their stocks; means of capture; and the handling, processing and utilizing of fish and fishery products.

In addition, the Board publishes the following:

An *Annual Report* of the work carried on under the direction of the Board.

The *Journal of the Fisheries Research Board of Canada*, containing the results of scientific investigations.

Atlantic Progress Reports, consisting of brief articles on investigations by the Atlantic stations of the Board.

Pacific Progress Reports, consisting of brief articles on investigations by the Pacific stations of the Board.

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For a complete list of the Board's publications, write to:

*Fisheries Research Board of Canada,
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FOREWORD

The subject-author index presented here has been prepared in response to requests for a guide to the published work of the Fisheries Research Board of Canada and of its predecessor, the Biological Board of Canada. Because of the rather large number of publications involved, the Board's Publications Committee considered that a really comprehensive index would be too great a task, but that an index based mainly on the *titles* of papers would have considerable value. However, during its compilation many entries covering specific information in their text and tables, but not mentioned in their titles, were included.

In addition to the names listed on the title page of this Bulletin, numerous employees of the Board have assisted with the index in one way or another. Dr. Lyle A. Swain, formerly of the Board's Technological Station in Vancouver, B.C., deserves special mention.

PUBLICATIONS INDEXED

The Index covers the following seven series of publications. A complete list of titles included in these, to the end of 1954, is given in the Appendix. Titles subsequent to 1954 in the continuing series are listed in the Annual Reports of the Board.

1. (a) CONTRIBUTIONS TO CANADIAN BIOLOGY.

Issues appeared with the following dates: 1901, 1902-05, 1906-10, 1911-14 (in two Fascicles), 1914-15, 1915-16, 1917-18, 1918-20, 1921 (in two Parts). Each issue contained several papers serially numbered.

(b) CONTRIBUTIONS TO CANADIAN BIOLOGY (NEW SERIES).

Beginning in 1922, the *Contributions* were grouped into volumes which were continuously paged, though composed of a number of separate issues. These issues were not numbered, but each separate paper carried a number. Two volumes appeared under this title, from 1922 to 1925.

(c) CONTRIBUTIONS TO CANADIAN BIOLOGY AND FISHERIES (NEW SERIES).

In 1926 the above change of name was made, but the sequence of volumes was not altered. Volumes III-VIII appeared under the new title, during 1926-34. Beginning with Volume VI, Nos. 11-12, the articles were grouped into four Series: A. General; B. Experimental; C. Industrial; and D. Hydrographic. However, the numbers assigned under these headings are best ignored in bibliographic citation, since they are additional to the regular numbered sequence of papers in each volume.

2. (a) JOURNAL OF THE BIOLOGICAL BOARD OF CANADA.

The *Journal* replaced the *Contributions* with the completion of Volume VIII of the latter. Three volumes of the *Journal* were issued under this name, in 1934-37. Each volume consisted of five numbered issues of about 100 pages each. Numbering of individual papers was discontinued, as was the grouping into the four Series above.

(b) JOURNAL OF THE FISHERIES RESEARCH BOARD OF CANADA.

This change in the name of the *Journal* followed on the change in name of the Board by Act of Parliament, but the numbering of volumes was not interrupted. The first issue under the new name appeared in 1938, and Volumes IV-XI were published during the years 1938-54. With Volume VI, the number of issues per volume was increased to 7; it was 10 in Volume VII, 7 in Volume VIII, 9 in Volume IX, 8 in Volume X, and 6 in Volume XI.

3. (a) BULLETINS OF THE BIOLOGICAL BOARD OF CANADA.

This series was begun in 1918, and 55 issues appeared under this name, to 1937.

(b) BULLETINS OF THE FISHERIES RESEARCH BOARD OF CANADA.

Bulletins 56-101 appeared under this name, during 1939-54.

4. (a) CANADIAN ATLANTIC FAUNA.

This series was begun in 1921. Five parts, numbered 3a; 9b; 10m; 10n; and 12d,e,f have appeared at irregular intervals, though not in the order shown, to the latest one in 1948.

(b) CANADIAN PACIFIC FAUNA.

This series was begun in 1937. Six parts, numbered 1a,b,c,d; 1e; 1f,g; 9b(1); 9b(2); and 10e have appeared at irregular intervals, though not in the order shown, to 1955.

5. STUDIES FROM THE BOARD'S STATIONS (reprints). (See also under 10.)

(a) STUDIES FROM THE BIOLOGICAL STATIONS OF THE BIOLOGICAL BOARD OF CANADA.

(b) STUDIES FROM THE BIOLOGICAL STATIONS OF THE FISHERIES RESEARCH BOARD OF CANADA.

(c) STUDIES FROM THE STATIONS OF THE FISHERIES RESEARCH BOARD OF CANADA.

Separates of articles embodying work done at the Board's Stations, published in journals other than the Board's own, have been collected under the *Studies* series listed above. The series was begun in 1919, each addition being numbered consecutively throughout the changes in name of the series. The number of copies obtained was not great and no general distribution was attempted until 1952, beginning with No. 327. A complete or nearly complete set of *Studies* is available in the libraries of most of the Board's Stations, and at its Headquarters in Ottawa. Studies No. 1-395 appeared to the end of 1954 and are included in this Index. Copies of *Studies* are not available for sale.

6. RESEARCH BULLETINS OF THE NEWFOUNDLAND GOVERNMENT LABORATORY.

The 18 Bulletins of this series were published from 1932 to 1948. This series and the next were discontinued at the time Newfoundland entered Confederation in 1949. They are included in the present Index because the Fisheries Research Board of Canada can be considered the successor in interest to the fisheries research work done by the Newfoundland Government Laboratory prior to 1949.

7. SERVICE BULLETINS OF THE NEWFOUNDLAND GOVERNMENT LABORATORY.

The 15 Bulletins of this series are dated from 1935 to 1940.

REPORTS NOT INDEXED

The series of publications listed above comprise a major part of the published work of the Fisheries Research Board and its predecessor the Biological Board, but not all of it. Series *not* included in this Index are described briefly below.

8. *Annual Reports* of the Board's work, published first for the year 1925, and annually since. (Listed on page 165 of Appendix.)

9. Two series of *Progress Reports* are published approximately quarterly concerning the work done at the Board's Atlantic and Pacific Stations. These series commenced in 1931 and 1929, respectively.

(a) *Progress Reports of the Atlantic Coast Stations* (titles on pages 167-180 of Appendix)—indexes in issues No. 16, 20, 27, 33, 53 and 60.

(b) *Progress Reports of the Pacific Coast Stations* (titles on pages 181-209 of Appendix)—indexes in issues No. 60, 80 and 100.

10. The *Studies* series described under 5 was begun only in 1919. Titles of papers which appeared prior to 1919 are included in a list of publications for the years 1901-21, which appeared in Contributions to Canadian Biology for 1921, No. 12, pages 169-183. Even since 1919, some papers have been omitted from the *Studies*, either through inadvertence or because their interest was considered to be too local or too fleeting. Titles of most of these may be found in a list of publications for 1922-30, published in the Board's Bulletin No. 28, and in the lists of publications included in each year's printed Annual Report.

11. Other sources of information concerning the Board's work include the *Circulars* and *Industrial Memoranda* which have been issued by several of the Stations, and the *Manuscript Reports* which are prepared for use within the organization. Titles of these are listed each year in the Annual Report.

PLAN OF THE INDEX

The Index has been prepared mainly from the titles of the articles, with some reference to the abstracts, subheadings and conclusions. With the biological papers, the aim has been to list the main references to species and localities, and the kind of information obtained. Technological subjects are listed under the type of process concerned and the kind of product involved, as well as the fisheries source material.

Names of authors and co-authors of papers are also included in the Index.

NAMES OF FISHES, BIRDS AND MAMMALS. For papers where only a few different species are mentioned, entries have been made under each species. For the biological papers that mention many species, entries have been made under one of the general headings such as Fauna; Distribution of fish; Birds.

When a single species of fish has a large number of entries, they have been divided between the subheadings "biology" and "technology". With species having fewer entries, technological references are usually indicated by a descriptive word in brackets after the page number.

References have been listed under the common English name of the fish; where there are variants, the name selected for Pacific species has usually been that used in the Board's Bulletin No. 68, while for Atlantic or freshwater fishes we have usually used the name recommended by the latest revision of the American Fisheries Society's list of approved names. In all cases the American Fisheries Society name is cross-indexed (hyphens have been dropped from a few). Scientific names are listed, but only by a reference to the English name (except that *single* entries are repeated under the scientific name).

In some technological papers only a collective name for the fish in question is given; these entries appear after the individual species names: e.g., Skates appears at the end of the list of all the particular kinds of skates.

NAMES OF OTHER ORGANISMS. Commercial species appear under their common English name (e.g., Clams, Irish moss, etc.). Most other organisms appear under the name of the Order, Sub-order or Family in which they are classified. The groups so listed are indicated in brackets after the name of a more general term, e.g., Molluscs; Bivalves; etc.

GEOGRAPHICAL REFERENCES. Only the references to well-known geographical localities are listed, or those places where a great deal of biological investigation has been done. A note concerning the main purport of the paper is added to each geographical entry. Under the names of the Provinces reference is made only to those papers in which no particular locality is specified, or in which the locality is not sufficiently well known to warrant a separate entry.

PHYSICS AND CHEMISTRY OF NATURAL WATERS. Papers dealing with the composition or properties of sea water, the distribution of water masses, currents, tides, etc., appear under the headings Oceanography or Currents. Similar papers for inland waters appear under Limnology.

FISHERIES AND FISH POPULATION BIOLOGY. These topics are listed under one or more of the following headings: Abundance; Age composition; Catch per unit effort; Catchability; Depletion; Exploitation; Food studies; Growth rate; Management; Mortality; Statistics; Surveys; Tagging. Each entry is followed by an indication of the kinds of fish involved.

SUBDIVISION OF HEADINGS. Headings under which there are many entries have been subdivided. Examples are: Bacteria; Chemical composition; Disease; Distribution; Limnology; Oceanography; Oil; Physiology; etc.

ABBREVIATIONS

For distinguishing in the Index the various series of publications, initials are used as follows:

C: Contributions

J: Journal

B: Bulletins

AF: Canadian Atlantic Fauna

PF: Canadian Pacific Fauna

S: Studies

NR: Newfoundland Research Bulletins

NS: Newfoundland Service Bulletins

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CLEMENS, WILBERT AMIE

C1911-14(2): 113, 131; C1918-20: 69;

C1921: 73, 87

J7: 215; J9: 141

B15; B17; B26; B27; B55; B56; B68

S77; S90; S91; S92; S107; S113; S115;

S118; S122; S134; S145; S160; S179;

S195; S197; S212; S219; S233

Clevelandia ios

B68: 169

CLIMATE (see Weather)

CLING-FISH, COMMON

B68: 334

CLING-FISH, SLENDER

B68: 335

Clinocottus acuticeps

B68: 273

Clinocottus embryum

B68: 272

Clinocottus globiceps

B68: 271

Clostridium (see Bacteria; Spoilage)

Clupea harengus (see Herring, Atlantic)

Clupea pallasii (see Herring, Pacific)

CLUPEIDAE (see also Alewife; Herring; Shad)

C1902-05: 95

COD, ALASKA (*see* Blackcod)

COD, ATLANTIC (BIOLOGY)

C1906-10: 23; C1914-15: 103; C4: 287;
C8: 433

J5: 105; J10: 539; J11: 251, 894
B18; B61

S234; S329; S354; S379A

NR4: 13; NR14

NS8: 14

COD, ATLANTIC (TECHNOLOGY)

C3: 469; C8: 227, 275, 291

J1: 179; J3: 2, 77, 102, 439, 473; J4: 63,
252, 355, 412; J5: 32, 197, 203, 221, 276,
287; J6: 1, 45, 53, 359, 380, 403, 441, 491;
J7: 70, 128, 370, 378, 421, 430, 449, 461,
528, 536, 580, 585; J8: 111, 325; J9: 129,
148, 388; J11: 261, 355

B7: 7; B9; B59: 395, B89: 331 (oil)

S38; S41; S52; S101; S324; S349 (oil)

NS1, NS3 (oil); NS4; NS9

COD, BLACK (*see* Blackcod)

COD, GRAY (*see* Cod, Pacific)

COD, GREENLAND (*Gadus ogac*)

J11: 247

S336

COD, LING (*see* Lingcod)

COD, LONG-FINNED

B68: 133

COD, PACIFIC (BIOLOGY) (*Gadus macrocephalus*)

J8: 377

B68: 132

COD, PACIFIC (TECHNOLOGY)

J4: 367 (trimethylamine), 405 (oil); J7: 552
(peptones from flesh)

B37: 148, B89: 335 (oil)

COD, PILOT

J11: 248

COD, POLAR

J11: 248

B73: 2

COD, RED (*see* Rockfishes)

COD, ROCK (*see* Rockfishes)

CODWORM (*Porrocaecum*)

J10: 539; J11: 894

COELENTERATA (HYDROIDA)

AF3a

COHO (*see* Salmon, coho)

COLD STORAGE (*see also* Refrigeration)

C7: 495

COLLECTORS (FOR OYSTER SPAT)

B22: 21; B34: 16; B48; B60: 20

COLLINS, VERNON KIRKPATRICK

J4: 412; J5: 32, 197, 203

COLLIP, JAMES BERTRAM

S7

Cololabis saira

B68: 123

COLORIMETRY

C7: 119

J2: 1; J6: 351, 414; J7: 576, 594

COLOUR (*see* Pigment)

COMMENSALISM

J7: 219

COMPETITION, IN POPULATIONS

J10: 211

CONNELL, ROBERT

S61

CONNELL, WALTER THOMAS

C1902-05: 53

CONNOLLY, CORNELIUS JOSEPH

C1921: 113; C1: 335; C2: 327

B3

S94

COOKE, NORMAN EDWARD

J7: 522; J8: 117

COOPER, ARTHUR REUBEN

C1911-14(2): 177

COOPER, DOUGLAS LeBARON

J3: 1, 100; J4: 136

S135

COPELAND, G. G.

C1906-10: 281

- COPEPODA, FREE-LIVING
 C1917-18: 217; C1: 303; C4: 527; C5: 83;
 C6: 483
 J1: 1; J3: 12; J5: 365; J11: 240
 B15: 7
 S3; S50; S79; S124; S312
- COPEPODA, PARASITIC
 C1906-10: 85; C1911-14(1): 69; C1917-18:
 171; C3: 235; C5: 80, 423; C6: 215
 J2: 355; J5: 172; J6: 24; J7: 505; J11: 267,
 673, 816
 S2; S94
 NR 16: 39
- COPPER SULPHATE (*see* Poisons)
- CORACIDIA (*see* Cestoda)
- COREGONIDAE (*see* Ciscoes; Lake whitefish;
Prosopium)
- Coregonus clupeaformis* (*see* Lake whitefish)
- CORNISH, GEORGE A.
 C1902-05: 75, 81; C1906-10: 79
- CORNWALL, IRA EDMOND
 C2: 469; C3: 501; C5: 213
 J1: 469; J10: 76
 PF10e
- CORROSION (PREVENTION)
 J7: 101, 116 (cans)
- COTTIDAE (*see also* Sculpins; Cabezon)
 C1906-10: 215
 B68: 242; B94: 21
 S81; S82; S148
- Cottus aleuticus*
 S144
- Cottus asper* (*see* Sculpin, prickly)
- Cottus cognatus*
 S144
- Cottus rhothea*
 S144
- Couesius plumbeus*
 S144
- COULTHARD, H.S.
 C4: 121
- COWICHAN L., B.C.
 J9: 417 (limnobiology)
- COWICHAN R., B.C.
 J5: 448 (trout); J6: 133 (bottom fauna)
 B84 (game fish)
- COX, PHILIP
 C1914-15: 73, 81, 115; C1918-20: 109;
 C1921: 151; C1: 1, 409
 J5: 1
 B2
- CRABS
 C1: 335; C2: 327; C7: 335
 J1: 191; J5: 344
 B30; B62; B91
 AF10m (Atlantic)
 S5; S64; S133; S142
- CRAB, HERMIT
 S169
- CRAIGIE, EDWARD HORNE
 C1914-15: 87, 145, 151, 163; C1917-18: 127;
 C3: 489
 S42; S47; S53; S54; S66
- CRAPPIE, BLACK
 S144
- Crassostrea* (*see* *Ostrea*)
- CRAW, C. HELEN
 S51
- CREATINE
 C6: 343
- CRECY L., N.B.
 S297, S341 (fertilization); S385 (creel census)
- CREEL CENSUS
 J8: 383; J11: 5
 S385 (Crecy Lake)
- Cristivomer namaycush* (*see* Trout, lake)
- CRUISING SPEED (OF FISHES)
 J7: 169, 432; J8: 67; J11: 153
- CRUSTACEANS (*see also* Entomostraca, Malo-
 costraca)
 C1906-10: 83, 187; C1911-14(1): 39;
 C1911-14(2): 145
 J9: 164
 S64

Cryptacanthodes maculatus

S5: 4

CRYSTALS, GLASS-LIKE

J6: 183 (in canned lobster)

CTENOPHORA (COMB-JELLIES)

C6: 13

J11: 240

S110

CULTURE (OF OYSTERS AND OTHER INVERTEBRATES)

C1906-10: 217, C1915-16: 53 (oysters);
C1911-14(2): 13 (mayflies); C1914-15: 41,
C1915-16: 11, C1917-18: 53 (lobsters);
C1917-18: 75 (mussels)

B22: 17, B34: 17, B48, B60 (oysters)

S132 (oysters)

CULTURES (OF MICROORGANISMS)

C1918-20: 63 (diatoms); C8: 459 (bacteria)
J7: 162, 430 (*Pseudomonas*), 552 (bacteria);
J9: 148 (*Flavobacterium*), 157 (bacteria);
J10: 62 (bacteria)

CULTUS L., B.C.

C2: 345 (ecology of sockeye); C5: 3, 37, 55,
C8: 345 (life of sockeye)

J2: 311 (sockeye); J3: 363 (physical limnology), 450 (natural food of sockeye); J4: 19 (sampling plankton), 33 (net plankton), 151 (sockeye propagation), 184 (young sockeye mortality), 192 (kokanee and residual sockeye); J5: 293, 315 (predators of sockeye); J6: 267 (size of young sockeye relative to density); J7: 88 (sea-run and landlocked sockeye); J9: 204 (benthos); J10: 293 (coho); J11: 339 (adult sockeye survival), 988 (sockeye)

B53: 4 (salmon)

S200 (dragonflies); S208 (stoneflies); S295 (sockeye production)

CUMACEA (CRUSTACEANS)

C6: 23

CUNNER

C2: 423; C4: 431; C8: 275

J11: 254

B5: 5

S234

CURING (*see* Pickling; Salt fish; Smoking)

CURRENT, REACTIONS TO

J4: 491 (speckled trout); J7: 434 (Atlantic salmon and eels); J8: 241 (chum, pink, coho); J10: 523 (coho and chum salmon fry); J11: 69 (young Pacific salmon), 550 (cutthroat trout)

B34: 11 (oyster); B57: 56, B99 (Atlantic salmon)

S298 (Atlantic salmon)

CURRENTS, WATER (*see also* Flow; Oceanography)

C1: 101, 353 (Bay of Fundy); C2: 69 (Halifax Harbour); C3: 271 (West Vancouver I.), 282 (West Graham I., B.C.)

J1: 133 (in models), 171 (St. John estuary, N.B.); J2: 89 (sea mussel distribution), 116 (Gulf of Maine), 141 (Bay of Fundy); J3: 43 (Nootka Sound), 93 (West Vancouver I.), 203 (Fundy region); J4: 339 (Gulf Stream), 491 (Margaree Harbour, N.S.); J5: 169 (St. John estuary), 398 (Juan de Fuca Strait); J6: 460 (West Greenland); J7: 1 (Scotian Shelf), 545 (oyster trays); J9: 42 (Loudoun Channel), 213 (Grand Manan Channel), 329 (Great Lakes); J10: 97 (Fundy region), 155 (Scotian Shelf), 177 (Labrador coast); 564 (NE. Japan); J11: 14, 503, 799 (Strait of Juan de Fuca), 503 (Strait of Georgia), 23 (effect of wind), 26 (prediction); 32 (Bay of Fundy), 48 (Hecate Strait), 198 (Strait of Belle Isle), 229 (Esquiman Channel), 431 (relation to appendicularians), 853 (Seymour Narrows, B.C.)

B13: 3 (east coast ice); B18: 3 (Strait of Belle Isle); B34: 13 (B.C. oyster beds) B57: 56 (Margaree Estuary, N.S.); B83: 18 (Alberni Inlet, B.C.); B88: 46 (Arctic); B91: 3 (off Queen Charlotte I.)

S20 (tides in estuaries); S21 (tides in oceans); S56, S75 (Fraser R. mouth); S112, 376 (Strait of Georgia); S123 (B.C. fiords); S136, S139, S178, S201, S204, S210 (transgressions on Scotian Shelf); S174 (dynamic studies in Pacific); S211, S346, (Passamaquoddy Bay); S304, S361 (Arctic); S316 (Hudson Bay); S317 (Labrador Current); S345 (fresh water entering sea); S358 (Sambro lightship)

CUSHMAN, JOSEPH AUGUSTINE

C1921: 133

CUSK
C8: 531 (plastic from muscle)
NS8: 29

CUSK-POUT
B68: 197

Cyclopteroichthys ventricosus (see Lump-sucker,
smooth)

Cyclopterus lumpus (see Lumpfish)

Cyclothone microdon
B68: 105

Cymatogaster aggregatus
B68: 147

Cynoscion nobilis
B68: 145

CYPRINIDAE (see Minnows)

Cyprinus carpio (see Carp)

D

DAB, MOTTLED SAND (Pacific sand dab)
J8: 375
B68: 308

DAB, RUSTY (see Flounder, yellowtail)

DAB, SPECKLED SAND
C8: 99
B68: 309

DACE, HORNED
S213

DACE, LONGNOSE
B56: 37
S144

DACE, REDBELLY
S144

Dactylopterus volitans
S235

Damalichthys vacca
B68: 151

DAMS
J2: 95
S356

Dasyatis dipterurus
B68: 68

Dasycottus setiger
B68: 275

DAUPHINEE, JAMES ARNOLD
S23; S25

DAVIDSON, FREDERICK ALEXANDER
S257

DAVIDSON, VIOLA MAY
C2: 295; C6: 495; C8: 357
J7: 432
S32; S121

DEAS, CATHERINE PEARSON
J7: 221, 513, 552, 563

DECAPODA (see also Crabs, Lobsters, Shrimps)
AF10m (Atlantic)
NR3: 11

Decapterus macarellus
S235

Decapterus polyaspis
B68: 161

DECOLORIZATION (OIL)
C7: 413
J7: 471

DEHYDRATION (see also Drying)
C8: 475 (during refrigeration)

DELACY, ALLAN CLARK
B66; B74

Delolepis giganteus
B68: 184

Delphinapterus leucas (see Beluga)

DELURY, DANIEL BERTRAND
J8: 281

DENATURATION OF PROTEINS
C8: 311 (by freezing)
J5: 411 (effect of pH and NaCl); J7: 599
(by freezing); J8: 325; J9: 392 (by salting)
S324 (by freezing)

DENSITY (see Oceanography; Specific gravity)

DENSTEDT, ORVILLE FREDERICK

C6: 365; C8: 321

J1: 487; J2: 13

B37

S97

DEODORIZATION

J8: 189 (of seal oil)

DEPARTURE BAY, B.C.

C1906-10: 85 (parasitic copepods), 215 (new cottoid), 295 (geology); C1911-14(1): 51 (iodine content of flora and fauna); C1918-20: 29 (effect of weather), 35 (oceanography); C1: 81 (phytoplankton), 203 (annelids); 455 (starfish); C2: 285 (annelids); C3: 13 (isopods), 317 (ophiurans); 405 (annelids); C4: 19 (*Bankia*), 305 (annelids); C5: 213 (barnacle); C6: 65 (annelids)

J2: 335 (endoparasitic trematodes); J10: 85 (polychaete)

B17: 3 (birds and herring)

S61 (algae)

DEPLETION

C1901: 59 (herring); C2: 137 (trout); C5: 3 (sockeye)

J6: 483 (sockeye); J10: 1 (herring)

S266 (fisheries)

DEPTH DISTRIBUTION

C1917-18: 229 (marine invertebrates);

C1918-20: 49 (plankton diatoms); C6 241 (haddock), 485 (copepod plankton)

J10: 498 (bottom fauna); J11: 69 (Pacific salmon); 479 (plankton)

B56: 49 (whitefish)

S6: 2 (*Sagitta*); S44: 60 (wood-borers);

S48 (growth rate of algae)

NR 16: 60 (lobster larvae)

DEPTH, RIVER WATER (*see* Flow)

Derepodichthys alepidotus

B68: 197

DESMIDS (*see* Algae, freshwater)

DETWEILER, JOHN D.

C1911-14(1): 43; C1914-15: 145; C1917-18: 75

Diaphus rafinesquei

B68: 114

DIATOMS (*see also* Algae, freshwater; Plankton)

C1902-05: 55; C1906-10: 243; C1911-14(1): 11; C1915-16: 11; C1918-20: 63, 115; C1921: 155; C1: 81, 135; C2: 31; C6: 495; C8: 357

J1: 357; J3: 12; J7: 490

S32; S56; S75; S121; S277

DICKIE, LLOYD MERLIN

J11: 660

DIGBY COUNTY, N.S.

C1901: 59 (sardines); C1914-15: 41 (lobster-hatching ponds)

J11: 660 (scallops); 963 (flounders)

S15 (mussels)

DIGESTION (*see* Physiology)

DIMETHYLAMINE

J5: 32

DIMORPHISM (SEXUAL)

J3: 417; J6: 228

Diphyllobothrium (*see* Cestoda)

DISCOLORATION (*see also* Browning)

C7: 139, 425 (halibut)

J3: 70, J5: 276, 287, 438, J6: 10, 17, J9: 157, 377 (in salt fish)

B8 (lobster); B9: 16 (dried fish); B12 (halibut)

S102 (fresh, frozen and smoked fish)

NS4 ("pink" in salt cod)

DISCHARGE RATE (*see* Flow)

DISEASE (OF FISH) (*see also* Bacteria, in diseases)

C1914-15: 81 (herring); C1917-18: 149, 169 (salmon), 172 (furunculosis); C8: 103 (furunculosis)

J5: 1 (furunculosis)

S218, S252 (furunculosis); S243 (whirling disease); S283 (P.E.I. oysters); S311 (use of poisons)

DISEASE (OF INVERTEBRATES) (*see also* Bacteria, in diseases)

C1914-15: 73 (quahaugs)

J3: 358 (lobsters)

B22: 12 (oysters)

NR16: 38 (lobsters)

DISEASE (OF MAN)

B60: 78 (from oysters); B75 (poison from shellfish)

DISINFECTANTS (see also Ice, germicidal; Poisons)

C7: 139 (formaldehyde)

J6: 17 (for red bacteria), 63, 84 (sodium nitrite), 257 (general); J7: 101 (general)

DISINFECTING (see Sterilizing; Sanitation)

DISPERSAL (see Migration)

DISTRIBUTION OF FISH (Arctic)

B73: 2; B94: 1
S361

DISTRIBUTION OF FISH (Atlantic)

C1901: 9, 25, 55, 59; C1902-05: 26, 81, 91;
C1906-10: 54, 69, 79; C1911-14(1): 25, 69;
C1918-20: 99, 109; C1921: 49; C1: 416;
C2: 102, 115, 161; C3: 449, 470, 489; C5:
423; C7: 203; C8: 13, 275, 295, 433.

J3: 258, 329; J4: 229, 310; J7: 95; J8: 314;
J9: 83; J11: 11, 198, 894

B1: 7; B2: 9; B3: 6; B4: 4; B23: 16;
B25: 6; B43: 5; B51: 2; B61; B69;
B70: 6; B71: 8

S5; S40; S41; S54; S62; S111; S130;
S155; S159; S184; S203; S205; S211;
S226; S234; S235; S258; S281; S298;
S354

NR4

NS6; NS8; NS14

DISTRIBUTION OF FISH (INTERIOR WATERS)

C1901: 9 (N.B.); C1902-05: 22 (L. Ontario,
29 (Ottawa R.); C1911-14(2): 1 (Georgian
Bay); C1: 133 (Quill Lakes, Sask.), 419
(Athabaska lakes, Alta.); C2: 146
(Ontario), 412 (Cultus Lake); C3: 365
(Forbes Brook, P.E.I.), 377 (Jasper Park);
C4: 197 (Jasper Park); C6: 178 (Bay of
Quinte, Ont.), 455 (Hudson Bay), 473
(Churchill, Man.); C7: 325 (Man.), 378
(Hudson Bay region); C8: 1, 13 (Hudson
and James Bay), 103 (B.C.)

J2: 299; J3: 328; J4: 310 (Margaree R.,
N.S.); J5: 294 (Cultus L., B.C.); J7: 26
(Tedford L., N.S.), 95 (N.S.), 183 (Great
Bear L., N.W.T.), 248 (Beaver R., N.S.);
J8: 207 (Great Slave L., N.W.T.), 347
(Ont. and Que.), 383 (Charlotte Co., N.B.);
J9: 10 (Hudson Bay), 83 (Ungava Bay
region), 204 (Cultus L., B.C.), 417

(Cowichan L., B.C.); J10: 196 (Okanagan
region, B.C.); J11: 362 (Duffin Cr., Ont.),
624 (Port John L., B.C.), 673 (B.C.), 884
(hosts of *Triaenophorus*)

B23: 29; B32: 5 (B.C.); B56: 28 (Okanagan
lakes, B.C.); B72 (N.W.T.); B78 (Great
Bear L., Great Slave L., N.W.T.); B79:
2 (Nelson R., Man.); B82: 2 (Great Bear
L., N.W.T.)

S137, S138, S198, S213 (L. Jesse, N.S.); S144,
S227 (B.C.); S163 (Jones L., B.C.); S170
(Vancouver, B.C.); S197 (Shuswap L.,
B.C.); S200 (Cultus L., B.C.); S205 (L.
Ainslie, N.S.); S206 (N.S.); S224 (Swan
L., B.C.); S229 (N.B. lakes); S242
(Potter's L., N.B.); S249, S250 (trout);
S270 (Ont. salmon); S278 (P.E.I. ponds);
S282 (Tathlina and Kakisa Lakes, N.W.T.);
S357 (L. Winnipeg region)

NS6 (Newfoundland rivers)

DISTRIBUTION OF FISH (PACIFIC)

C1: 285; C3: 265, 489; C7: 319, 469; C8:
162

J2: 335; J3: 12; J7: 157, 238, 513, 609; J8:
374; J9: 141, 143; J10: 461, 560; J11: 335
B23: 25; B31: 3; B34: 7; B38: 11; B40:
6; B47: 31; B54: 3; B62: 3; B63: 19;
B64: 4; B66: 5; B67: 19; B68

S114; S130; S143; S148; S160; S227;
S258; S290; S302; S322; S334; S336

DOAN, KENNETH HENRY

B79; B98

DOE, LANCELOT ATHELSTANE EARLSTON

J9: 42

DOG

C7: 57; C8: 228

DOGFISH, ATLANTIC SPINY (BIOLOGY)

J11: 351

AF12e: 17

NR15

DOGFISH, ATLANTIC SPINY (TECHNOLOGY)

C1918-20: 125; C1: 401; C7: 477; C8: 275

S17; S18

NR15

NS5

DOGFISH, PACIFIC SPINY (BIOLOGY)

B27: 9; B68: 59

S13; S58; S59; S66; S81; S82; S119; S392

- Enchelyopus cimbrius* (see Rockling, four-bearded)
- ENEMIES (see Predators)
- Engraulis mordax* (see Anchovy)
- Enophrys bison*
B68: 258
- ENTOMOSTRACA (see also Barnacles; Cladocera; Copepoda; Ostracoda)
C1911-14(2): 221; C3: 179, 331
J11: 479
- Entosphenus japonicus*
B94: 5
- Entosphenus tridentatus* (see Lamprey, Pacific)
- ENVIRONMENT (see Light; Limnology; Oceanography; Salinity; Temperature; etc.)
- ENZYMES
J1: 145 (digestive); J3: 473, J10: 590 (for leather bate); J4: 367, J5: 187, J6: 368, J7: 361, J8: 195 (trimethylamine oxide reducing); J5: 217, J7: 513 (tryptic); J7: 94 (thiaminase), 552 (tryptic and peptic); J9: 393 (lipoxidase); J11: 529 (thiaminase)
S23, S25, S82 (arginase)
- Eopsetta jordani* (see Brill)
- EPHEMERIDA (see Mayflies)
- Epigreichthys atra-purpureus*
B68: 176
- L. ERIE
C1921: 73, 87 (ciscoes)
- Erilepis zonifer*
B68: 241
- Esox lucius* (see Pike, northern)
- Esox masquinongy* (see Muskellunge)
- Etrumeus teres*
S226
- Eucalia inconstans*
S144
- EULACHON
B37: 146 (oil); B64: 3; B68: 99; B89: 346
- Eumetopias jubata* (see Sea-lion, Steller's)
- Eumicrotremus orbis*
B68: 293
- Eumicrotremus spinosus*
B73: 7
- EUPHAUSIACEA (CRUSTACEANS)
C8: 181
B15: 7
- Eupomotis gibbosus* (see Pumpkinseed)
- EXPLOITATION, RATE OF
J5: 43; J11: 580, 827
- EXTRACTS
C7: 439 (from skate's skin)
- F
- FAGERLUND, ULF HENRIK MATHIAS
S371; S380
- FARMER, ERNEST HAROLD
S349
- FARMING, OYSTER (see Culture)
- FAT CONTENT OF FISH
J4: 461
- FATS (see Oils)
- FATTY ACIDS (see Oil, fatty acids of)
- FAUNA, ATLANTIC
C1901: 19, 29, 49; C1902-05: 10, 31; C1906-10: 37, 45, 69; C1914-15: 145; C1917-18: 93, 99, 229, 329; C1918-20: 80, 137; C2: 81, 89, 95, 295; C3: 323, 331; C4: 397, 527
J2: 95, 409; J3: 189; J4: 281; J5: 23, 459; J6: 472; J7: 95, 128; J8: 134, 314; J9: 223; J10: 366
B44; B48; B60; B75
AF3a (Hydroida); AF9b (Polychaeta); AF10m (Decapoda); AF10n (Pantopoda); AF12d (Marsipobranchii); AF12e (Elassmobranchii); AF12f (Holocephali)
S1; S2; S4; S5; S6; S15; S44; S45; S164; S184; S272; S277; S283; S353
- FAUNA, ARCTIC
B94
S361
- FAUNA, INTERIOR WATERS
C1: 132 (Sask.); C2: 135 (Ont.), 507 (B.C.); C3: 365 (P.E.I.); C4: 77 (Ont.),

- 157, 175, 185, 197, 221, 343 (Alta.); C5: 381, 441 (Man.); C6: 201 (Ont.), 455 (Hudson Bay)
J2: 499 (N.B. and N.S.); J3: 21, 452 (B.C.); J6: 133 (B.C.), 476 (N.B. and N.S.); J7: 22, 95 (N.S.), 183 (N.W.T.); J8: 347 (Ont., Que.); J9: 204, 417 (B.C.)
B42, B56 (B.C.); B78 (N.W.T.)
S163, S197, S200, S208, S228 (B.C.); S198 (N.S.); S242, S297 (N.B.); S278, S279 (P.E.I.)
- FAUNA, PACIFIC**
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NS10; NS11: 18
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J3: 1 (smoking); J5: 148 (spoilage); J7: 370, 378, 421, 430, 461, 528, 536, 580 (spoilage); 449 (palatability); J8: 111 (spoilage)
B20 (frozen); B100 (handling)
- FILLETING** (*see* Processing)
- FILMS, PAINT**
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B37: 12; B59: 320; B89: 289
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C6: 355, 417; C8: 311
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J3: 189
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- FISH MEAL**
J7: 563 (amino acids); J10: 64 (vitamin B₁₂)
B25: 27 (haddock); B35: 7, B36: 19 (pilchard); B47: 26 (herring); B59: 425 (changes in oil)
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- FISHER, KENNETH CLARKE**
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- FISHING EFFORT (INTENSITY)**
J1: 277 (lobster); J3: 145 (herring); J8: 264 (related to gill nets)
- FISHING METHODS**
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B1: 9 (American plaice); B2: 28 (lumpfish); B3: 8 (angler); B4: 10 (muttonfish); B14: 5, B57: 18, B58: 24 (salmon); B20: 10, B25: 22, B69: 8 (haddock); B30: 6, B62: 25, B91: 7 (crab); B36: 8 (pilchard); B47: 6, B63, B67: 6 (herring); B54: 10 (lingcod); B56: 40 (whitefish); B60: 56 (oysters); B61: 3 (Atlantic cod); B70: 8 (smelt); B71: 6 (halibut)

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- FJARLIE, ROBIN LENT IBSEN
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J7: 490
B75: 1
- FLATFISH (*see* Flounder, Halibut, Sole)
- FLEMING, ALLISTER MELVILLE
J11: 11
- FLESH, FISH (*see also* Muscle)
C1921: 125 (lobster); C6: 1 (proteins), 375 (freezing haddock); C7: 147 (spoilage of haddock)
J4: 63 (spoilage of Atlantic cod); J7: 74 (vitamin B), 585, 594, 599 (protein fractions)
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J3: 366 (Cultus L.); J8: 1 (Great Slave L.), 383 (N.B.)
S163 (Jones L., B.C.); S170 (brackish water); S242 (Potter's L., N.B.); S278, 279 (P.E.I. National Park)
- FLOUNDER, CURL-FIN (*see* Sole, curl-fin)
- FLOUNDER, FOUR-SPOT (*Paralichthys oblongus*)
NS14: 21
- FLOUNDER, GEORGES BANK (*Pseudopleuronectes dignabilis*)
NS14: 19
- FLOUNDER, LEMON (*see* Sole, lemon)
- FLOUNDER, LONGFIN (*see* Sole, rex)
- FLOUNDER, LONG-JAW (*Atheresthes stomias*)
J8: 375
B68: 310
- FLOUNDER, ROCK (*see* Sole, rock)
- FLOUNDER, ROUNDNOSE (*see* Brill)
- FLOUNDER, SAND (*Lophopssetta maculata*)
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NS14: 22
- FLOUNDER, SLENDER (*see* Sole, slender)
- FLOUNDER, SLIPPERY (*see* Sole, Dover)
- FLOUNDER, SMOOTH (*Liopsetta putnami*)
J11: 954
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NS14: 19
- FLOUNDER, STARRY (*Platichthys stellatus*)
B68: 324
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- FLOUNDER, WINTER (*Pseudopleuronectes americanus*)
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J11: 954, 963
S52 (lactic acid); S54; S59 (blood sugar); S108 (parasites); S234
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- FLOUNDER, WITCH (*Glyptocephalus cynoglossus*)
J11: 954
NR4: 14
NS 14: 12
- FLOUNDER, YELLOWTAIL (*Limanda ferruginea*)
J11: 171, 954
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- FLOW (RATE OR VOLUME OF)
J2: 383, J6: 217 (McClinton Creek, B.C.); J4: 48, J5: 228 (Margaree R., N.S.), 323 (Forest Glen Brook, N.S.); J5: 401 (Fraser R., B.C.), 485 (Moser R., N.S.); J6: 158 (Cowichan R., B.C.), 311, 399 (salmon rivers of N.B. and N.S.); J8: 178 (Skeena R.), 241 (reaction of young Pacific salmon); J9: 63 (Somass R., B.C.); J10: 146 (St. Lawrence R.), 523 (response of salmon fry); J11: 362 (salmon survival), 814, 881 (effect on tides—Fraser R.)

- B57: 56 (Margaree R., N.S.); B86 (Morice-town Falls, B.C.); B99 (artificial freshets, LaHave R., N.S.)
- S83 (Fraser R.); S175 (relation to Atlantic salmon abundance); S257 (pink salmon streams); S298 (Atlantic salmon rivers); S391 (related to Pacific salmon production)
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C1: 219; C2: 335; C5: 1, 37, 55; C8: 345
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J6: 267, 483; J7: 88; J10: 293; J11: 339, 988
B50; B53
S67; S84; S124; S127; S197; S248; S294; S295; S390
- FOOD STUDIES (*see also* Predators; Birds)
C1901: 26 (*Mya*), 49 (sea urchin); C1915-16: 40 (coho); C1917-18: 12 (sea-lion); C1918-20: 80 (muttonfish); C1921: 87 (ciscoes); C1: 8 (lumpfish), 287 (Pacific fishes); C2: 182, 228 (shad), 402 (sockeye), 456 (cunner); C3: 269 (spring salmon); C4: 197 (Jasper Park fishes), 421 (*Littorina*); C5: 443 (whitefish), 464 (pumpkin-seed); C6: 200, 445 (whitefish), 239 (cisco); C7: 179 (L. Winnipeg fish), 245 (pilchard)
J1: 477 (B.C. herring); J2: 299 (birds), 401 (herring), 485 (lobster), 499 (Atlantic salmon); J3: 12 (copepods and Pacific fish), 20 (sucker, Kamloops trout), 323 (birds), 450 (sockeye); J4: 48 (kingfishers), 309 (mergansers), 382 (herring); J5: 84 (starfish), 131 (*Prosopium*), 183 (brook trout), 293 (sockeye predators), 365 (herring), 448 (trout); J6: 90 (salmon and trout), 137 (trout), 419 (*Themisto*), 421 (seal); J7: 22 (killifish, white perch), 183 (lake trout), 490 (shellfish); J8: 103 (squawfish), 207 (lake trout, whitefish, etc.), 347 (muskellunge); J9: 1 (Arctic char), 169 (brook trout), 204 (Cultus L. fishes); J10: 326 (Arctic char), 512 (Great Slave L. fishes); 560 (fur seals—N.E. Japan); J11: 5 (lake trout), 535 (haddock)
B1: 18 (American plaice); B2: 10 (lumpfish); B3: 15 (angler); B4: 10 (muttonfish); B25: 20 (haddock); B30: 15 (crabs); B42: 3 (trout); B55: 32 (mergansers); B54: 21 (cod); B56: 42 (whitefish); B60: 11 (oysters); B65 (spring and coho salmon); B78: 15 (whitefish, suckers); B79: 7 (speckled trout); B82: 8 (coregonine fish); B98: 13 (beluga)
- S50 (Entomostraca); S73 (Pacific clams); S98 (herring and sockeye); S112 (in Strait of Georgia); S124, S295 (sockeye); S140 (salmon and trout—Margaree R.); S141 (pond culture); S148 (fish predators of Pacific salmon); S166 (selection by ciliates); S185 (*Daphnia pulex*); S272 (haddock); S346 (Passamaquoddy Bay sardines)
- NR6: 29 (haddock); NR9 (trout); NR14: 84 (Atlantic cod); NR15: 48 (Atlantic spiny dogfish); NR 17: 128 (capelin)
- FORAMINIFERA
C1921: 133
- FORBES BROOK, P.E.I.
C3: 365 (trout); C5: 203 (trout)
- FORBES, JOHN CAMPBELL
C3: 467
S31
- FORMIC ACID
S380 (in marine worm)
- FOUGÈRE, HENRI
J6: 441. J7: 200. J9: 388
- FORRESTER, CLIFTON ROGER
S394
- FOSKETT, DUDLEY ROBERT
S328; S342; S362
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- FOWLER, JAMES
C1901: 41. C1902-05: 59
- FRANK, MARK
J5: 249, 276, 287
- FRASER, CHARLES MCLEAN
C1914-15: 119, 133. C1915-16: 21, 39. C1917-18: 5, 105, 329. C1918-20: 7, 29, 35, 137. C1921: 103, 167. C1: 95, 285. C3: 323, C6: 475
J1: 503; J7: 214
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- FRASER R. AND ESTUARY, B.C.
J5: 401 (oceanography). J11: 814, 881 (effect of flow on tides), 988 (sockeye)
B16 (sockeye tagging)
S56, S75, S83, S344 (oceanography)

FREEZING (FISHERY PRODUCTS) (*see also* Frozen fish; Refrigeration)

C1: 297 (failure and success). C6: 375 (haddock). C8: 311 (halibut)

J1: 95 (bacteria)

B20 (haddock); B24 (mackerel); B29: 13, B49: 7 (halibut); B44: 3 (oysters); B59: 420 (changes in oil); B90: 9 (salmon)

S109 (rate of freezing); S309 (effect on quality); S324 (effect on proteins)

FREEZING POINT

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FRENCH, HAROLD VICTOR

J6: 338; J7: 585

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FRIEDMAN, MAC HEGBY FRED

J1: 239, 251, 261

FRITZ, CLARA W.

C1918-20: 49, 63

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B94: 24

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NR3; NR4; NR5; NR9

NS6; NS8; NS14

FROST-FISH

B68: 160

FROZEN FISH (*see also* Freezing; Refrigeration)

C1906-10: 23; C1911-14(1): 73; C1: 299, 401; C6: 375; C8: 311

J7: 237, 599

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J7: 169

Fundulus diaphanus (*see* Killifish, banded)

Fundulus heteroclitus (*see* Mummichog)

FUNDY (*see* Bay of Fundy)

FUNGI (*see also* Moulds)

C1911-14(1): 47; C1911-14(2): 213; C1917-18: 152, 171; C5: 193

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B92 (mink)

S361 (Arctic)

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B68: 191

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Gadus aeglefinus (*see* Haddock)

Gadus callarias, *G. morrhua* (*see* Cod, Atlantic)

Gadus macrocephalus (*see* Cod, Pacific)

Gadus ogac (*see* Cod, Greenland)

GAGE, DOUGLAS GORDON

J11: 355

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GALL-BLADDER, FISH

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GAME FISH (*see also* Distribution; Salmon; Trout; etc.)

B32 (B.C.); B72: 89 (N.W.T.); B84: (Cowichan R., B.C.)

S141 (pond culture); S144 (B.C.)

GASPEREAU (*see* Alewife)

GASTEROSTEIDAE (*see* Sticklebacks)

Gasterosteus aculeatus (*see* Stickleback, three-spined)

GASTROPODA (SNAILS, etc.) (*see also* Nudi-branchiata)

C3: 133, 167; C4: 413

J5: 23; J7: 219

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GEAR, FISHING (*see also* Fishing methods; Sanitation)

C7: 295 (preservation)

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C3: 347; C5: 431

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- GEORGIAN BAY, ONT.
C1911-14(2): 1 (fishes), 53 (Odonata), 95 (Mollusca), 113 (Ephemera), 145 (Malacostraca), 165 (leeches), 177 (bass parasite), 195 (Bryozoa), 210 (plants), 213 (fungi), 219 (aquatic plants), 221 (Entomostraca)
- GIBBARD, JAMES
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- GIBBONS, NORMAN EDWIN
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- Gibbonsia elegans montereyensis*
B68: 172
- Gibbonsia metzi*
B68: 173
- GILBERT, CHARLES HENRY
C1906-10: 215
- Gilbertidia sigalutes*
B68: 279
- GILL RAKERS
J6: 392
- GILTAY, LOUIS
J5: 459
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- GLAZE (IN FISH)
S156
- GLUE (FROM FISH)
C1918-20: 129; C7: 165
B25: 27
- GLYCEROL
J6: 326
- GLYCOGEN (*see* Carbohydrates)
- Glyptocephalus cynoglossus* (*see* Flounder, witch)
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- GOBY, ARROW
B68: 169
- GOBY, FINE-SCALED
B68: 169
- GOBY, LARGE-SCALED
B68: 167
- GODFREY, HAROLD
B101
- GOLDEYE
B72: 80
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C1917-18: 167
J7: 169; J8: 67; J11: 57
- Goniaulax* (*see* Flagellata; Poisons)
- GOOSEFISH (*see* Angler)
- GORDON, HOWARD SCOTT
J10: 442
- GOWANLOCH, JAMES NELSON
C3: 133, 167
- GRAHAM, MICHAEL
J2: 95
- GRAINGER, EDWARD HENRY
J9: 65; J10: 326; J11: 98, 507
- GRAN, HAAKON HASBERG
J1: 279
- GRAY, ROBERT
B52
- GRAYFISH (*see* Dogfish)
- GRAYLING, AMERICAN (*Thymallus signifer*)
B32: 44; B72: 40, 61, 90; B94: 16
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- GREAT BEAR LAKE, N.W.T.
J7: 176 (trout), 190 (pike); J10: 51 (coregonine fishes)
B72: 31 (survey); B78: (*Pontoporeia* and *Mysis*); B82 (coregonine fishes)
- GREAT LAKES (*see also* Lakes Erie, Huron, Ontario and Superior)
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- GREAT SLAVE LAKE, N.W.T.
J7: 190 (pike); J8: 1 (limnology), 207 (fishes), 264 (fishing effort); J10: 413 (whitefish), 486 (bottom fauna); J11: 827 (lake trout)
B72: 45 (survey); B78 (*Pontoporeia* and *Mysis*)

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B68: 135

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C2: 307; C4: 1, 9
B80
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C1918-20: 99

GROWTH RATE
C1914-15: 87 (hake), 95 (haddock), 103 (cod); C1915-16: 21 (spring salmon), 42 (coho salmon); C1917-18: 111 (pollock); C1918-20: 7 (Pacific salmon), 73 (muttonfish); C1921: 22 (mussels), 81 (ciscoes), 119 (anglers); C1: 12 (lumpfish); C2: 151 (sockeye), 213, 234 (shad), 451 (cunner); C3: 389 (rainbow trout), 431 (haddock); C4: 81 (*Mya*), 121 (mussel), 197

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J1: 191 (crab); J2: 41, 353, 485 (lobster), 89 (mussels), 311 (sockeye), 359 (Kamloops trout), 379 (salmon); J3: 132, 145 (herring); J4: 202 (sockeye), 287 (oyster); J5: 8 (*Teredo*), 71 (lobster), 84 (starfish), 337 (*Prosopium*); J6: 10, 74, 233, 257, 349, 491 (bacteria), 63 (mammals), 334 (cisco and whitefish); J7: 35, 74 (rats), 178 (lake trout), 190 (pike), 221, 430, 552 (bacteria), 545 (quahaugs and oysters); J8: 117 (trout), 207 (Great Slave L. fishes), 347 (maskinonge), 374 (flounders, soles), 383 (brook trout), 469 (ciscoes); J9: 1 (Arctic char), 169 (brook trout); J10: 69 (bacteria), 211 (theory), 253 (phytoplankton), 326 (Arctic char), 371 (lobster), 413 (whitefish); J11: 171 (yellowtail flounder), 284 (whitefish), 362 (salmon parr), 660 (scallops), 827 (lake trout)
B1: 20 (plaice); B2: 18 (lumpfish); B3: 13 (angler); B4: 7 (muttonfish); B15: 6 (coho); B25: 16 (haddock); B27 (spring salmon); B56: 44 (whitefish); B62: 19 (Pacific crab); B82: 4 (coregonine fish)
S15 (mussel); S48 (algae); S72, S73, S94, S262 (clams); S85 (B.C. trout); S121 (phytoplankton), S142 (crab); S164 (lobster); S264 (Pacific pilchard); S270 (Ontario salmon); S341 (trout—Crecy L., N.B.); S364 (Pacific herring and halibut)
NR1: 45 (Atlantic salmon); NR6: 14 (haddock); NR9 (various trout); NR14: 76 (Atlantic cod); NR15: 13 (Atlantic spiny dogfish); NR17: 87 (Atlantic capelin); NR18: 26 (lobster)
NS2: 4, NS15: 20 (lobster)

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B68: 280

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J1: 279 (phytoplankton); J3: 189 (zooplankton)

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GULF STREAM
J4: 339; J10: 155

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GUTTING, SPLITTING AND CLEANING FISH
B1: 11 (plaice); B3: 9 (angler); B9: 5 (fish
for drying); B19: 7 (mackerel for pickling);
B20: 10 (haddock for ice fillets); B24: 8
(mackerel for canning); B49: 5 (halibut);
B52: 2 (herring)
NS9: 9 (cod)

GUTTMANN, ABRAHAM
J9: 129

GWYN, AGNES MARGARET
J5: 11

Gymnocanthus sp.
B73: 3

Gymnocanthus tricuspis
J11: 248

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C6: 463, C7: 91
J1: 121, 133, 171, 227; J4: 339, 378, 424;
J5: 377; J7: 1, 355; J9: 325; J10: 148;
J11: 32, 198, 395
S136; S139; S178; S182; S201; S204;
S210; S304; S306; S316; S317; S358;
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C1901: 61; C1914-15: 95; C1915-16: 86;
C3: 423; C4: 265; C6: 241; C8: 409
J11: 250, 535
B25; B69
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C1917-18: 175, 179; C3: 347, 441, 457, 469;
C4: 27, 117, 227, 257, 317; C5: 431; C6:
1, 375; C7: 57; C8: 123, 131, 227, 275,
291, 302, 531
J1: 179; J3: 473; J5: 221; J6: 53; J8: 111
B7: 21; B20: 2; B25: 27; B59: 405, B89:
339 (oil)
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B68: 49
AF12d

HAKE (*Urophycis tenuis*) (BIOLOGY)
C1914-15: 87
J11: 251
B68: 129
S35; S52; S234
NS8: 25

HAKE (TECHNOLOGY)
C8: 275
J5: 221
B7: 19; B59: 406, B89: 338 (oil)
S35; S52

HAKE, SILVER (*Merluccius bilinearis*)
NS8: 27

HAKE, SPOTTED (*Urophycis regius*)
NS8: 27

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C1914-15: 87
S54
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jaw)

HALIBUT, ATLANTIC (BIOLOGY)
C1914-15: 19; C1: 409
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HALIBUT, ATLANTIC (TECHNOLOGY)
C8: 275
B7: 19
S52; S324

HALIBUT, PACIFIC (BIOLOGY)
C1914-15: 1, 19
B68: 311
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HALIBUT, PACIFIC (TECHNOLOGY)
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J4: 174, 396, (oil), 327, 367; J5: 148, 267,
411; J6: 103, 113 (oil), 119; J7: 35, 51,
74; J10: 69
B7: 7; B12; B29; B37; 149, B59: 399,
B89: 328 (oil); B49
S89; S156; S364

HALIBUT, GREENLAND (*Reinhardtius hippo-
glossoides*)
NS14: 11

HALIFAX, N.S.

C2: 69 (polluted water); C8: 409 (young haddock)

B61 (cod)

HALOPHILES (*see* Bacteria of salted fish; Moulds)

HAMPTON, WILLIAM FORSEY

NS4; NS5; NS9; NS12; NS13

HANDLING (FISH, ETC.)

B2: 26 (lumpfish); B19: 11 (pickled mackerel); B20: 24 (haddock); B33: 7, B43: 11 (lobsters); B44: 3, B60: 63 (oysters); B49: 7 (halibut); B52 (herring)

S31 (tensile strength of haddock muscle);

S41, S102 (bacteria); S164 (live lobsters);

S323 (refrigeration); S332 (modern methods)

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J4: 39

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HARPER, ESTHER LOUISE

S347

HARPER, FRANCIS

C1: 419

HARRINGTON, ROBERT WHITING, JR.

J11: 329

HARRISON, FRANCIS CHARLES

C1917-18: 149, 179; C1: 279

B12

S41; S89

HART, JOHN LAWSON

C6: 165, 427, 445; C7: 245

J3: 417; J4: 478; J6: 164

B36; B38; B39; B64

S120; S128; S160; S161; S171; S176;

S183; S193; S194; S196; S220; S221;

S239; S240; S246; S247; S253; S254;

S261; S264; S302; S315; S389

HART, JOHN SANFORD

J7: 169

HART, JOSEPHINE FRANCES LAVINIA

C6: 23

S133; S169

HARVEY, J. M.

C5: 83

HASLER, ARTHUR DAVIS

J11: 107, 472

HATCHERIES, FISH (*see also* Transplantation)

C1917-18: 105 (sockeye), 149 (Atlantic salmon); C5: 3, 40, 57 (sockeye); C6: 207 (whitefish)

J2: 311 (sockeye); J4: 141, 233 (pink salmon), 151 (sockeye); J6: 311 (Atlantic salmon), 483 (sockeye); J7: 88 (sockeye); J8: 125 (salmonoids), 383 (speckled trout); J10: 196 (speckled trout)

B50, B53 (sockeye); BS4: 27 (Atlantic salmon, Kamloops trout, speckled char and lake trout)

S84, S127 (sockeye); S141 (salmonoid game fish); S259 (Atlantic salmon)

HATCHERIES, FOR INVERTEBRATES (*see* Culture)

HATCHET-FISH, SILVERY

B68: 106

J11: 501

HAYES, ERNEST REGINALD

S331

HAYES, FREDERICK RONALD

C3: 133; C4: 413

B99

S116

HEART RATE (*see* Physiology, circulatory system)

HEAT, LATENT AND SPECIFIC

S101 (fish muscle)

HEIGHT, OF WATER IN RIVERS (*see* Flow)

HELIOZOA (PROTOZOA)

PF1c

Hemilepidotus hemilepidotus

B68: 244

Hemilepidotus spinosus

B68: 243

HEMING, L., MAN.

J11: 1 (trout-perch)

B95: 27 (pike control)

HENDERSON, JEAN T.

C2: 307; C3: 235; C4: 397; C6: 215

- HEREDITY (ANADROMOUS AND FRESHWATER FORMS)
J4: 1; J6: 245; J7: 88; J9: 169
- HERLINVEAUX, RICHARD HENRY
J11: 14, 799
- HERMAN, F.
S395
- HERRING, ATLANTIC (BIOLOGY)
C1901: 59; C1902-05: 95; C1906-10: 23;
C1914-15: 81; C1915-16: 21
J1: 145; J2: 95, 401; J4: 349, 392; J5: 365;
J10: 1; J11: 607
S211; S234
- HERRING, ATLANTIC (TECHNOLOGY) (*see also*
Sardines)
C1: 279
J1: 179; J7: 116; J11: 255
B52
S101
- HERRING, LAKE (*see* Ciscoes)
- HERRING, PACIFIC (BIOLOGY)
C1921: 105
J1: 477; J3: 108, 145; J4: 461; J5: 11, 347,
474; J7: 403; J9: 42, 393; J11: 587
B17: 1; B47: 1; B63: 1; B65: 20 (salmon
food); B67: 1; B68: 79
S41; S146; S171; S190; S193; S221, S240,
S247, S254; S266, S285, S327, S343;
S363; S364; S378
- HERRING, PACIFIC (TECHNOLOGY)
J4: 478; J5: 428, J6: 109 (oil), 305; J7: 35,
138, 513, 522; J10: 64
B37: 140 (oil); B47: 26; B59: 387, B89:
312 (oil)
S13; S81; S82; S325; S335; S373; S374
- HERRING, ROUND (*Etrumeus teres*)
S226
- HESS, ERNEST
C4: 27; C5: 93; C7: 147; C8: 459, 489
J1: 95, 109; J3: 358; J5: 249, 276, 287,
438; J6: 1, 10, 17
B24
- HEWSON, LEO CLARE
S319
- Hexagrammos stelleri*
B68: 233
- Hexagrammos superciliosus* (*see* Greenling,
fringed)
- Hexanchus corinus*, *H. griseus* (*see* Shark,
Pacific mud)
- HILDEBRAND, HENRY HERMAN
J9: 83
- Hippoglossoides elassodon* (*see* Sole, flat-head)
B68: 315
- Hippoglossoides platessoides* (*see* Plaice,
American)
- Hippoglossus hippoglossus* (*see* Halibut,
Atlantic)
- Hippoglossus stenolepis* (*see* Halibut, Pacific)
- HIRUDINEA (*see* Leeches)
- Histiocottus bilobus*
B68: 246
- HISTOLOGY
C1918-20: 185; C8: 207
J1: 109; J11: 63 (chum salmon testes)
S18; S24
- HISTORY
B21 (Atlantic salmon fishery); B34 (oysters
in B.C.); B36 (pilchards in B.C.); B47
(herring in B.C.); B64 (smelts of B.C.);
B90 (chum and pink salmon fishery);
B91 (crabs of Graham Is.)
S132 (oysters in B.C.); S258 (fishery research
in Canada); S292 (eastern Canadian
fisheries); S315 (fishery problems in B.C.);
S329 (Ungava Bay); S344 (Canadian Pacific
oceanography); S346 (Passamaquoddy
Bay sardine fishery); S354 (Atlantic
fisheries); S389 (B.C. trawl fishery); S392
(B.C. dogfish fishery); S393 (B.C. whaling);
S394 (blackcod fishery)
- Histrio pictus*
S203
- HOAR, WILLIAM STEWART
J4: 409, 441; J6: 90; J8: 241; J10: 523;
J11: 57, 63, 69
B90
S184; S223
- Holconotus rhodoterus*
B68: 154

- HOLLETT, ANDREW
J6: 152, 183; J7: 116
- HOLOCEPHALI (CHIMAEROIDS) (*see also* Ratfish)
AF12f
- HOMANS, ROSS EDANS SPENCER
J11: 535
S203; S272
- Homarus americanus* (*see* Lobster)
- HOMING (*see* Migration)
- HOOGLAND, PIETER LEVINUS
J11: 355
- HORMONES
C7: 1, 17, 31 (in skate)
J11: 57 (growth factor from salmon pituitary), 63 (androgens from salmon)
- HOURSTON, ALAN STEWART
J8: 347
S327; S343
- HOURSTON, WILLIAM RODERICK
B101
- HUBBS, CARL LEAVITT
C7: 319
J6: 30
- HUDSON BAY
C1921: 133 (Foraminifera), 149 (sticklebacks); C1: 21 (echinoderms), 27 (Ascidacea), 419 (fishes); C3: 1 (amphipods); C6: 455 (fisheries), 463 (survey), 475 (hydroids), 483 (copepods), 495 (diatoms); C7: 91 (oceanography), 361 (Bryozoa), 377 (Cestoda); C8: 1 (coregonine fish), 13 (other fish), 63 (marine algae)
J3: 350 (echinoderms); J5: 23 (Pteropoda); J6: 129 (Polychaeta); J9: 1 (Arctic char)
B98 (beluga)
S15 (mussels); S62 (fishes)
- HUMES, ARTHUR GROVER
J11: 816
- HUMIDITY (*see also* Drying)
J6: 10, 303; J7: 200
- HUNTER, ANDREW
S23; S25; S81; S82
- HUNTER, JOHN GERALD
S383
- HUNTING METHODS
B98: 14 (beluga)
- HUNTSMAN, ARCHIBALD GOWANLOCH
C1906-10: 103; C1911-14(1): 39; C1911-14(2): 145; C1917-18: 169; C1918-20: 85, 93; C1921: 49, 167; C1: 27, 125; C2: 69, 81, 89, 95; C3: 423; C6: 455
J2: 401; J4: 1, 96, 409; J5: 227, 485; J6: 311, 399, 476; J7: 248, 363; J10: 1; J11: 198
B1; B5; B9; B13; B20; B21; B51; B57
S5; S6; S20; S21; S32; S40; S140; S165; S168; S175; S187; S188; S192; S205; S207; S211; S225; S256; S258; S259; S266; S267; S269; S270; S275; S276; S280; S289; S291; S292; S298; S300; S303; S306; S333; S346; S354
- HUNTSMAN, MARY ELINOR
C7: 31
- L. HURON, ONT.
J9: 325 (temperature distribution)
- HUTCHINSON, ANDREW HENDERSON
J6: 206
S56; S75; S112
- HUTCHINSON, SAMUEL JEROME
S257
- HYDROGENATION (*see also* Oil, chemical reactions)
C7: 521 (pilchard oil)
B37: 31; B59: 110; B89: 247
- HYDROGEN-ION, pH (IN BACTERIAL GROWTH, etc.)
J4: 219, 355; J5: 121, 203, 265, 276, 287, 411; J6: 45, 53, 233, 403, 435; J7: 155, 561; J10: 590 (caecal enzyme)
S63; S70; S71; S78; S119
- HYDROGEN-ION, pH (IN NATURAL WATERS) (*see* Limnology; Oceanography)
- HYDROGRAPHY (*see* Limnology; Oceanography; Physiography)
- HYDROIDS (*see also* Hydrozoa)
AF3a
- Hydrolagus colliei* (*see* Ratfish)
- HYDROLYSIS OF OIL (*see also* Oil, chemical reactions)
C7: 505

HYDROXYLAMINE (AS PRESERVATIVE)

J6: 349. J10: 69

HYDROZOA

C1917-18: 329; C1918-20: 137; C1: 95, 219, 291; C3: 323; C6: 475

J1: 503

AF3a

S79; S147

Hyperprosopon argenteum

B68: 153

Hypomesus pretiosus (see Smelt, silver)

Hypsagonus quadricornis

B68: 282

I

ICE, GERMICIDAL

J4: 327; J5: 36, 244; J7: 155
S370; S375

Icelinus borealis

B68: 253

Icelinus filamentosus

B68: 255

Icelinus tenuis

B68: 254

Icelus bicornis

J11: 248

Icichthys lockingtoni

B68: 203

Icosteus aenigmaticus

B68: 332

IDYLL, CLARENCE PURVIS

J5: 448; J6: 133

IDLER, DAVID RICHARD

S371; S380

INCONNU (*Stenodus*)

B72: 59; B94: 9

INSECTS, AQUATIC (see also Chironomidae; Mayflies; Stoneflies)

C1911-14(2): 53 (dragonflies, Go Home Bay, Ont.); C4: 185 (Jasper Park), 221 (beetles, Jasper Park)

J9: 204 (Cultus L.)

S69 (Pacific marine species); S200 (dragonflies, Cultus L.)

INSULIN, FROM FISH (see also Islands of Langerhans)

C2: 115

B7: 1; B54: 24

S17; S24

INTRODUCTION (OF EXOTICS) (see Transplantation)

IODINE (see also Oil, chemical reactions)

C1911-14(1): 51, C1914-15: 25, 169 (sea-weeds); C1: 73 (sea water); C4: 115 (fish thyroid)

IODINE VALUES

S152

ION EXCHANGE

J7: 552

IRISH LORD, BROWN

B68: 243

IRISH LORD, RED

B68: 244

IRISH MOSS

S273, S274 (stabilizing power)

ISLANDS OF LANGERHANS (see also Morphology)

S18 (elasmobranch and teleostean fishes)

S24 (freshwater and marine fishes); S25,

S34 (effect of removal on blood sugar)

ISOMERIZATION

S350 (new procedure)

ISOPODA (CRUSTACEANS) (see also Gribble)

C3: 13

S1; S5; S39

Isopsetta isolepis

B68: 322

Isurus nasus (see Shark, mackerel)

J

JACKSON, F. SLATER

C1: 297

S18

JACKSON, KENNETH JOHN

S343

JAMPOLSKY, ABEY

J11: 57

JAPAN

J10: 560 (marine fishes)

JASPER PARK, ALTA.

C3: 377 (fishes); C4: 157 (stoneflies), 175 (leeches), 185 (aquatic insects), 197 (food and growth of fishes), 221 (beetles), 343 (plankton)

JEFFERS, ANNE MEREDITH

J2: 401

JEFFERS, GEORGE WILLIAM

C7: 203

J2: 401

B18

JELLYFISH

C1902-05: 121

S139; S5

L. JESSE, N.S.

S137, S206, S213 (fish population); S138 (copper sulphate); S198 (survey); S229 (poison)

JEWETT, STANLEY GORDON, JR.

J11: 543

JOHANSEN, FRITS

C2: 423; C3: 1

JOHNSON, MARTIN WIGGO

J3: 189

JOHNSON, WALTER HENRY

J2: 401; J4: 349, 392; J5: 365

JOHNSTON, MARION LAWSON

J4: 363

JOHNSTON, WILLIAM WALLACE

C8: 531

J3: 473; J4: 363; J5: 217

JOHNSTONE STRAIT, B.C. (*see also* Vancouver Island)

B31, B74, B96 (tagging salmon)

JONES L., B.C.

S163 (survey)

Jordania zonope

B68: 260

JUAN DE FUCA STRAIT

J5: 398 (currents); J11: 14 (tidal effects), 503, 799 (currents)

K

KAMLOOPS REGION, B.C.

B42 (productivity of lakes)

Katsuwonus pelamis

B68: 164

KEEN, DOROTHY JEAN

J10: 97

KELEHER, JAMES JOHN

J8: 469

S357

KELLEY, ALICE M.

J6: 435

KELP

C1914-15: 25, 169; C2: 503

KELP-FISH, SPOTTED

B68: 172

KELP-FISH, STRIPED

B68: 173

KENDALL, WILLIAM CONVERSE

C1: 419

KENNEDY, WILLIAM ALEXANDER

J7: 176, 190; J8: 264; J10: 51, 413; J11: 284, 827

B76; B81; B82

S282

KERR L., N.B.

J8: 340 (whitefish)

KERSWILL, CHARLES JAMES

J5: 23; J7: 545

S279

KETCHEN, KEITH STUART

J10: 459

S394

KETCHUM, BOSTWICK HAWLEY

J10: 97

KHAN, MUHAMMED MUJIBAR RAHMAN

J9: 393

KIDNEY

S310 (vitamin B₁₂); S335 (vitamin B_{12a})

KIELHORN, WILLIAM VINEYARD

J9: 223

KILLIFISH, BANDED
J7: 22
S213

KINDLE, EDWARD MARTIN
C1917-18: 93, 229

KING, EARL JUDSON
C7: 119
S121

KING, HAZEL M.
C7: 127

KINGFISH
B68: 146

KINGFISHERS (*see* Birds)

KING-OF-THE-SALMON
B68: 139

KLEEREKOPER, HERMAN
J10: 283; J11: 130

KLUGH, ALFRED BROOKER
C1906-10: 265; C1911-14(2): 219; C1915-16: 79; C1918-20: 181; C6: 41
S9; S27; S29; S37; S43; S48; S50; S79; S103; S104; S105; S110

KNIGHT, ARCHIBALD PATTERSON
C1901: 9; C1902-05: 21, 37, 111; C1906-10: 23; C1914-15: 41; C1917-18: 53; C1918-20: 185
J3: 184
B6

KOCH, LYLE WARD
C4: 77

KOKANEE (LAND-LOCKED SOCKEYE)
C1917-18: 105
J4: 192; J7: 88
B32: 42; B55: 33; B56: 29
S144; S237

KOMAROV, SIMON ANDREW
C7: 11, 57, 439; C8: 123, 131

KOOTENAY, L., B.C.
J2: 359 (Kamloops trout)

KUCHEL, CLEMENS CARL
J4: 174; J5: 203

KUITUNEN-EKBAUM, ELLA (*see also* Ekbaum E.)
C8: 71, 89, 99, 161
J7: 505

KYUQUOT, B.C.
B26 (salmon tagging)

L

LABRADOR
J10: 177 (oceanography)
NR12 (salmon obstructions); NR13 (Atlantic salmon)

LABRIE, ARTHUR
J3: 439

LACHANCE, ROBERT ANDRÉ
J9: 157

LA CROIX, GEORGE WILFRID
J11: 853

LACTIC ACID
J4: 355; J5: 122
S38; S52; S207

LADYSMITH HARBOUR, B.C.
J4: 53 (littleneck clam)

Lagenorhynchus obliquidus
B89: 352 (oil)

LAKES (*see* name of lake)

LAKE WHITEFISH
C5: 441; C6: 165, 427, 445; C7: 342; C8: 3
J6: 334; J8: 207, 340; J10: 51, 413; J11: 284
B56: 39; B72: 39, 55, 76; B76: B82; B94: 12
S144; S235
NR9: 7

LAKELSE L., B.C.
J8: 82 (limnology), 103 (sockeye); J11: 479 (plankton)

LAMELLIBRANCHIATA (*see* Bivalves)

Lamna cornubica, *L. ditropis* (*see* Shark, mackerel)

Lampanyctus leucopsarus
B68: 115

Lampanyctus regalis
B68: 116

LAMPREY, ARCTIC
B94: 5

LAMPREY, PACIFIC
J8: 275
B68: 47
S36, S144

LAMPREY, SEA
AF12d
S155; S234

Lampris regius
B68: 138

LANCE (*see* Sand-launce)

LANGFORD, RAYMOND ROBERT
J10: 238

LANGSTROTH, GEORGE OTTY
C6: 375
S101; S109

LANIGAN, JOHN ARTHUR
S327

LANTERN-FISH, BIG-EYED
B68: 110

LANTERN-FISH, BIG-FINNED
B68: 113

LANTERN-FISH, BLUE
B68: 111

LANTERN-FISH, SMALL-EYED
B68: 116

LANTERN-FISH, SMALL-FINNED
B68: 115

LANTERN-FISH, WHITE-SPOTTED
B68: 114

LARKIN, PETER ANTHONY
B78

LAUNCE (*see* Sand-launce)

LAUZIER, LOUIS
J8: 332; J10: 146, 155

LAWLER, GEORGE HERBERT
J11: 1, 884

LEATHER MANUFACTURE (*see also* Oil, industrial
uses)
J3: 473; J10: 590

Lebius superciliosus
B68: 234

LEECHES
C1911-14(2): 165
C4: 175

LEIM, ALEXANDER HENRY
C2: 161; C3: 457
B75
S4; S139

LENGTH-WEIGHT RELATIONSHIPS
C1915-16: 44 (coho); C1918-20: 7 (Pacific
salmon), 79 (muttonfish); C2: 245 (shad),
462 (cunner); C5: 73 (sockeye); C6: 427
(whitefish)
J2: 318 (sockeye), 401 (Atlantic herring);
J4: 441 (Atlantic salmon), 461 (herring),
478 (B.C. herring); J7: 197 (pike); J8:
207 (Great Slave Lake fishes), 347 (muskel-
lunge); J9: 1 (Arctic char), 169 (brook
trout); J10: 310 (coho), 416 (whitefish);
J11: 827 (lake trout)
B1: 11 (plaice); B2: 21 (lumpfish); B25:
19 (haddock); B81 (L. Manitoba fish);
B82: 5 (coregonine fish); B93: 6 (seals)
S54 (squirrel hake, pollack, winter flounder,
smelt); S250 (rainbow trout)

LEOPARDFISH (*Anarhichas minor*)
S203; S226

Lepeophtheirus (*see* Salmon-louse)

Lepidogobius lepidus
B68: 169

Lepidopsella bilineata (*see* Sole, rock)

Lepomis gibbosus (*see* Pumpkinseed)

Leptagonus decagonus
S203

Leptoclinus maculatus
J11: 248

Leptocottus armatus (*see* Cabezon)

LESSER SLAVE L., ALTA.
J7: 190 (pike)
B95: 31 (*Triaenophorus*)

LETHAL LIMITS

C1911-14(1): 73 (freezing mummichog); C2: 81 (light), 89 (larval lobster—temperature), 95 (temperature); C3: 149 (*Littorina*—temperature and salinity), 167 (*Buccinum*—dehydration and temperature); C4: 397 (lamellibranchs—temperature), 495, 501 (skate—temperature); C5: 109 (*Enchelyopus*—temperature and salinity); C8: 137 (skate tissue—temperature)
J2: 485 (larval lobster—temperature, salinity, food); J4: 409 (Atlantic salmon—salinity); J5: 84 (starfish—temperature and salinity), 485 (Atlantic salmon and brook trout—temperature); J6: 63 (mammals—sodium nitrite), 435 (herring eggs—oxygen), 476 (stream fishes—temperature); J8: 164 (Pacific salmon—salinity), 479 (flounders—tags); J9: 265 (Pacific salmon—temperature); J10: 196 (B.C. fishes—temperature)
B5: 8 (lobster—light); B33: 16 (lobster—temperature)
NR17: 127 (Atlantic capelin—temperature)

Leucichthys (see Ciscoes)

LIFE HISTORY

C1902-05: 95 (Clupeidae); C1911-14(2): 131 (mayflies); C1914-15: 87 (hake); C1915-16: 39 (coho); C2: 161 (shad), 423 (cunner); C3: 133 (*Littorina*), 247 (Bryozoa); C4: 265 (haddock), 474 (spring salmon); C5: 3, 37, 55 (sockeye); C6: 165 (whitefish); C7: 342 (*Triaenophorus*); C8: 345 (sockeye)
J1: 1 (copepods), 159 (Atlantic salmon); J2: 41 (lobster), 209 (*Chironomus*), 311 (sockeye); J5: 176, 471 (brook trout); J6: 24 (*Lepeophtheirus*), 37 (Atlantic salmon), 245 (rainbow trout); J7: 176 (lake trout); J10: 85 (*Micronereis*), 539 (*Porrocaecum decipiens*); J11: 1 (trout-perch), 326 (Polychaeta)
B1: 13 (plaice); B2: 11 (lumpfish); B3: 9 (angler); B4: 4 (muttonfish); B17: 5, B47: 2 (herring); B21: 5 (Atlantic salmon); B22: 15, B60: 6 (oyster); B25: 13 (haddock); B30: 9, B62: 5 (crab); B32: 14 (trout); B45: 7 (fish tapeworm); B53: 3 (sockeye); B54 (lingcod); B55: 2 (merganser); B56: 29 (fishes of Okanagan L.); B64: 3 (smelts); B68 (Pacific marine fishes); B78: 17 (*Pontoporeia*), 27 (*Mysis*); B79: 3 (speckled trout); B84: 6 (spring

salmon), 8 (coho), 14 (steelhead and rainbow trout); B85 (Pinnipedia); B93: 23 (seals); B97 (kingfisher); B98: 10 (beluga)
S45 (*Teredo navalis*); S50 (Entomostraca); S77, S90, S91, S92, S107, S113, S115, S118, S122, S134, S145, S179, S195, S219, S233, S328, S342, S362 (sockeye); S133 (B.C. crabs); S164 (lobster); S188 (Atlantic salmon); S194 (pilchard); S202 (parasites); S287 (B.C. salmon)
NR1: 33 (Atlantic salmon); NR2, NR17 (Atlantic capelin); NR7 (lobster); NR13 (Atlantic salmon); NR15 (Atlantic spiny dogfish)
NS8 (Newfoundland fishes); NS15 (lobster)

LIGHT (see Light, reactions to; Limnology; Oceanography)

LIGHT, REACTIONS TO

C1914-15: 115 (eels); C2: 81 (marine animals); C3: 154 (*Littorina*); C5: 83 (*Calanus*)
J1: 319 (phytoplankton); J2: 485 (lobster); J4: 323 (Atlantic salmon), 349, 392 (herring); J5: 365 (copepods), 485 (Atlantic salmon); J6: 10 (bacteria), 90 (salmon and trout), 158 (coho and spring salmon), 217 (pink salmon), 425 (*Thermisto*); J7: 363 (*Odontosyllis*), 432 (salmon, eels); J8: 134 (amphipods), 241 (Pacific salmon); J10: 253 (phytoplankton), 548 (spring salmon and trout); J11: 69 (Pacific salmon), 529 (effect on athiaminosis)
B5: 8 (lobster larvae); B62: 14 (crab); B99 (Atlantic salmon)
S8 (narcotized animals); S29 (wave length—reproduction rate); S40 (marine animals); S44 (wood-borers); S50 (Entomostraca); S79, S104, S111 (marine organisms); S164 (lobster laying eggs); S215 (rainbow trout and full moon); S281 (common sucker)

Limanda aspera

B68: 323

Limanda ferruginea (see Flounder, yellowtail)

LIMNOLOGY (GENERAL)

C2: 345 (Cultus L., B.C.); C5: 381 (Manitoba lakes)
J5: 138 (ponds at St. Andrews, N.B.); J7: 22 (Tedford L., N.S.); J8: 383 (Charlotte County lakes, N.B.)
B42: 3 (Paul L., B.C.), 22 (Pinantan L., B.C.), 25 (Penask L., B.C.), 27 (Fish L.,

- B.C.), 28 (Nicola L., B.C.); B78 (Great Bear and Great Slave Lakes, N.W.T.); B82 (Great Bear L., N.W.T.); B94: (Arctic)
- S37 (productivity of lakes); S50 (entomostacan ecology); S67 (Fraser R.); S163 (Jones L., B.C.); S170 (Lost Lagoon, Vancouver, B.C.); S195 (Shuswap L., B.C.); S198 (L. Jesse, N.S.); S200 (Cultus L., B.C.); S206 (N.S. lakes); S224 (Swan L., B.C.); S278 (ponds in P.E.I. park); S297 (Crecy L., N.B.)
- NR9: 17 (trout streams of Newfoundland)
- LIMNOLOGY (PHYSICAL AND CHEMICAL)**
- C1: 127 (Quill lakes, Sask.); C6: 185 (Bay of Quinte, Ont.)
- J1: 67 (fertilized ponds); J2: 227 (Prince Albert lakes, Sask.); J3: 363 (Cultus L., B.C.); J6: 217 (McClinton Creek, B.C.); J8: 1 (Great Slave L., N.W.T.), 82 (Lakelse L., B.C.); J9: 325, 329 (Great Lakes), 417 (Cowichan L., B.C.); J11: 624 (Port John L., B.C.)
- B42: 5 (Paul L., B.C.), 23 (Kamloops region lakes, B.C.); B56: 8 (Okanagan lakes, B.C.); B57: 42 (Margaree R., N.S.); B72: 35 (lakes of N.W.T.); B83: 59 (Alberni Inlet); B84: 5 (Cowichan R., B.C.)
- S43 (light penetration, Chamcook L., N.B.); S50 (effect of temperature, etc., on Entomostaca); S125 (oxygen saturation); S138 (L. Jesse, N.S.); S197 (Shuswap L., B.C.); S217 (temperature of fresh waters); S237 (kokanee and sockeye salmon waters); S239 (Potter's L., N.B.); S257 (pink salmon streams, B.C.); S270 (Ont. salmon streams); S278 (ponds in P.E.I. park); S297 (Crecy L., N.B.)
- Limnoria lignorum* (see Gribble)
- LINDSAY, SHEILA TAYLOR**
- NR1
- LING** (*Lota*, see Burbot)
- LING** (*Urophycis*, see Hake)
- LING, EUROPEAN**
- J11: 11 (in Newfoundland waters)
- LINGCOD** (*Ophiodon elongatus*) (BIOLOGY)
- B54; B68: 237
- LINGCOD (TECHNOLOGY)**
- C7: 405
- J2: 461; J4: 472; J6: 305; J7: 35, 51, 74, 552; J10: 69
- B37: 148, B59: 401, B89: 336 (oil); B54: 23
- S22 (pentose); S59 (blood sugar); S68 (liver asphyxial hyperglycaemia); S81 (creatine); S82 (arginase); S375 (preservation)
- LINTON, EVERETT PERCIVAL**
- J3: 1; J6: 338, 380
- S135
- Liopsetta pulnami* (see Flounder, smooth)
- LIPARID, ABYSSAL**
- B68: 302
- LIPARID, BLACK-TAILED**
- J11: 502
- B68: 304
- LIPARID, CONTINUOUS-FINNED**
- B68: 300
- LIPARID, DENNY'S**
- B68: 299
- LIPARID, GREEN'S**
- B68: 301
- LIPARID, GÜNTHER'S**
- B68: 297
- LIPARID, JUAN DE FUCA**
- B68: 298
- LIPARID, PALLAS'S**
- B68: 296
- LIPARID, PRICKLY**
- B68: 305
- LIPARID, RING-TAILED**
- B68: 295
- LIPARID, SHORE**
- B68: 297
- LIPARID, SMALL-DISKED**
- B68: 303
- LIPARID, TADPOLE**
- B68: 306

- Liparis callyodon*
B68: 296
J1: 213, 269; J2: 41, 223, 349, 485; J3: 339, 343, 358; J5: 71; J6: 152, 228, 281, 291; J8: 486; J10: 371; J11: 253
- Liparis cyclopus*
B68: 297
B5; B43
S164
AF10m
- Liparis dennyi*
B68: 299
NR7; NR8; NR10; NR11; NR16; NR18
NS2; NS15
- Liparis fabricii*
B73: 7
LOBSTER (TECHNOLOGY)
C1921: 125; C2: 1; C4: 227; C5: 93;
C8: 227
- Liparis florum*
B68: 297
J1: 179; J3: 102; J6: 183; J7: 70; J10: 521
B6; B8; B10; B33
NR10; NR11
NS2
- Liparis fucensis*
B68: 298
- Liparis pulchellus*
B68: 300
LOCKHART, ERNEST EARLE
J10: 590
- Liparis major*
J11: 249
LOGAN, JOHN FREMONT
C6: 1
- Liparis rutteri*
B68: 295
LOGIE, ROBERT REED
S283
- LIPOXIDASE
J9: 393
Lophius americanus, *L. piscatorius* (see Anglers)
- LIVER
J7: 563 (amino acids); J9: 129 (vitamin B₁₂);
J11: 355 (nutritive value and vitamin B₁₂)
S68 (lingcod); S310 (vitamin B₁₂)
Lophopsetta maculata (see Flounder, sand)
S234
- LIVER OIL
C7: 405 (lingcod); C8: 265 (salmon)
J4: 174 (halibut, dogfish), 312 (dogfish), 396 (halibut), 405 (Pacific cod), 472 (rockfish, blackcod, lingcod); J5: 428 (Pacific fishes); J6: 113 (halibut, dogfish), 326 (dogfish); J11: 357 (vitamin A, cod)
B37: 51 (Pacific fishes); B59: 210, B89: 180 (production)
S55, S86 (dogfish); S349 (cod, sardine, etc.)
NR15 (Atlantic spiny dogfish)
NS3 (cod)
LOST LAGOON, VANCOUVER, B C.
S170, S228 (brackish water)
- LOBOSA (PROTOZOA)
PF1a
Lota lota, *L. maculosa* (see Burbot)
- LOBSTER (BIOLOGY)
C1902-05: 28; C1906-10: 277; C1914-15: 41, 119; C1915-16: 11; C1917-18: 53; C1918-20: 185; C2: 83, 89; C3: 310; C8: 421
LOWE, CHARLES WILLIAM
C1918-20: 124
J3: 12
- Lumpenus anguillaris*
B68: 186
LUCAS, COLIN CAMERON
S56; S83; S112
LUCAS, VERA ZORA (see also Smith, V.Z.)
C6: 397
Lumpenella longirostris
B68: 188
Lumpenus fabricii
J11: 249
Lumpenus lampetraeformis
B73: 8

LUMPFISH

C1: 1

B2

S226

LUMPSUCKER, SMOOTH

J9: 141

LUMPSUCKER, SPINY (ATLANTIC)

B73: 7

LUMPSUCKER, SPINY (PACIFIC)

B68: 293

LUSENA, CHARLES VICTOR

J10: 521

Lycodapus heterofer (see Eelpout, pearly)

Lycodapus mandibularis

B68: 196

Lycodes brevipes

B68: 191

Lycodes palearis

B68: 190

Lycodopsis pacificus

B68: 193

Lyconectes aleutensis

B68: 184

LYMPHOID ORGAN (see Morphology)

Lyopsetta exilis (see Sole, slender)

Mac, Mc, M'

MACALLUM, ARCHIBALD BYRON

C1902-05: 121; C1918-20: 134

J3: 182

MACARTHUR, M. ISOBEL

J5: 1

MACBRIDE, E. W.

C1906-10: 217

MACCALLUM, WALLACE ALLISON

J8: 111

MACCLEMENT, W. T.

C1911-14(2): 210; C1915-16: 11

J4: 228

McCLINTON CREEK, B.C.

J3: 403, J4: 141, 233, J6: 217, J7: 224 (pink salmon)

S148 (food of predators); S257 (pink salmon)

McCOMBIE, ALEN MILNE

J10: 253

McCONNELL, JOHN ANDERSON

J8: 103

McCORMICK, N. A.

C2: 115

B7

S24; S26

McCRIMMON, HUGH ROSS

J11: 362

MCDONALD, D. L.

C1906-10: 83

MACFARLANE, CONSTANCE

C8: 63

McFARLANE, SAMUEL HANFORD

J2: 335

M'GONIGLE, ROWLAND HILLARY

C6: 315

S44; S45; S117; S159; S217; S243

MACGREGOR, DONALD GORDON

J9: 213; J11: 32

S306

McHUGH, JOHN LAURENCE

J5: 131, 337, 347, 474

B56; B64

S247

MACINTOSH, FRANK CAMPBELL

J1: 497

MACKAY, ALEXANDER HOWARD

C1901: 55; C1902-05: 55; C1918-20: 115

MACKAY, BRUCE SINCLAIR

J11: 48

MACKAY, DONALD COPELAND GIBSON

C7: 335

J1: 191

B62

S142

- MACKAY, MARGARET E. (MACKAY-SAWYER, M. E.)
C7: 17, 439, 477
J1: 239
S70; S71
- MACKENZIE, BEATTIE ALEXANDER
S386
- McKENZIE, RUSSELL ALDERSON
C8: 433
J5: 105
B23; B61; B69; B70: B71
S203; S226; S235; S336
- MACKENZIE R., N.W.T.
B72: 21 (survey)
- MACKINNON, DIXON
J10: 523, 548; J11: 310
- McLELLAN, HUGH JOHN
J7: 335; J9: 213; J10: 155; J11: 404, 419
- McLEOD, DONALD CAMERON
J10: 125
- MACLEOD, DONALD JOHN
C2: 1
- MACLEOD, JOHN JAMES RICHARD
C3: 437, 457
S17; S26
- MACLEOD, ROBERT ANGUS
S377; S379; S388
- McMAHON, VERNON HERBERT
J11: 479
- McMURRICH, JAMES PLAYFAIR
C1906-10: 33; C1915-16: 1
J4: 308
- McMYNN, ROBERT GORDON
B91
- McNAIRN, N. A.
J2: 401
- M**
- MACPHERSON, NORMAN LETHAM
NS1; NS3
- MACKEREL, ATLANTIC (BIOLOGY)
C1901: 61; C1902-05: 2; C4: 443
J11: 249
S41; S234
- MACKEREL, ATLANTIC (TECHNOLOGY)
C8: 227, 291
J3: 102; J4: 363; J5: 217; J7: 62
B19; B24; B89: 345 (oil)
S101
- MACKEREL, PACIFIC
B68: 163
- Macropinna microstoma*
B68: 104
- Macrourus bairdi*
S226
- Macrozoarces americanus* (see Eelpout)
- Macrurus acrolepis*
B68: 136
- MADTOM, TADPOLE
J11: 529
- MAGNESIUM AMMONIUM PHOSPHATE
J6: 183
- MAILLARD REACTION (BROWNING)
J8: 74
S351; S360
- Makaira albida*
S226
- Malacocottus kincaidi*
B68: 276
- MALACOSTRACA (CRUSTACEANS) (see also Amphipoda; Cumacea; Decapoda; Euphausiacea; Isopoda; Mysidacea)
C1911-14(2): 145 (Georgian Bay, Ont.)
- Mallotus catervarius*, *M. villosus* (see Capelin)
- MALPEQUE BAY, P.E.I.
J2: 41 (lobsters); J5: 8 (shipworms), 84 (starfish), 236 (oceanography)
B22, B48 (oysters); B77 (bivalves)
S234 (fishes)
- MAMMALS, MARINE (see also Seals, Sea lions, Whales)
J11: 267 (parasites)
- MAN
J5: 211 (trimethylamine in)

MANAGEMENT OF FISHERIES — RECOMMENDATIONS AND PROCEDURES (*see also* Poisons)

C6: 208 (whitefish)

J4: 141 (pink salmon); J5: 335 (sockeye), 485 (Atlantic salmon); J6: 37 (Atlantic salmon), 250 (rainbow trout), 449 (oysters) 483 (sockeye); J8: 125 (salmonoids), 369 (butter clams), 383 (brook trout); J10: 442 (economic approach)

B5: 9, B43: 4 (lobsters); B21: 56, B57, B99 (Atlantic salmon); B22: 28, B34: 7, B60: 14 (oysters); B32: 46 (trout); B36: 23 (pilchard); B47: 34, B67: 7 (herring); B56: 51 (lakes of Kamloops region); B72: 84 (Northwest Territories); B83: 123 (problems with pulp mill); B93: 47 (hair seals)

S205 (fish culture); S230, S250 (rainbow trout, Paul L.); S231 (coho salmon hatching); S238 (clams); S245 (molluscs); S258 (history in Canada); S259 (Atlantic salmon planting); S262 (Seal I. clams); S266 (fishery depletion); S267 (Canadian fisheries); S269, S275 (Atlantic salmon); S287, S288 (Pacific salmon); S292, S293, S294, S295, S296 (general discussions); S300 (in the northeast); S315 (fishery problems in B.C.); S318 (speckled trout on P.E.I.); S327, S378 (B.C. herring); S334 (B.C. recreational facilities); S339 (pink salmon); S364 (Pacific herring and halibut); S329 (Ungava Bay); S385 (speckled trout in N.B.)

NR10, NR11: 22 (lobsters)

NS2: 15, NS15: 34 (lobsters)

MANGANESE

S10 (in tubes of Polychaeta)

MANITOBA (*see also* individual localities)

C5: 381 (biological conditions), 441 (whitefish); C7: 325 (ciscoes), 342 (*Triaenophorus*)

L. MANITOBA, MAN.

B81 (walleye, sauger, perch)

MANZER, JAMES IVAN

J8: 374, 479

MAPPLEBECK, ELEANOR GERTRUDE

J9: 148, 377

MARCH, BERYL ELIZABETH

S373

MARGAREE R., N.S.

J2: 299, J3: 323, J4: 48, 309 (birds)

B51, B57 (salmon); B58 (birds and salmon)

S205 (fish culture); S333 (salmon)

MARGOLIS, LEO

J10: 62; J11: 267, 319

S387

MARIE-VICTORIN, FRÈRE

J6: 458

MARKETING OF FISHERY PRODUCTS

C1918-20: 125 (dogfish and other selachians)

B1: 9 (American plaice); B2: 26 (lumpfish);

B4: 10 (muttonfish); B10: 14 (lobster paste);

B20: 51 (frozen haddock); B25: 24 (had-

dock); B33: 8, B43: 11 (lobster); B36: 5

(pilchards); B44, B60: 67 (oysters); B47:

18 (herring); B49: 1 (fresh halibut); B54:

23 (lingcod); B90: 7 (salmon); B98: 22

(beluga)

S299 (by-products)

NR18: 9 (lobsters)

MARKING (*see* Tagging)

MARSIPORBANCHII (LAMPREYS, HAGFISHES)

AF12d

MARTIN, J. RUSSELL

S48

MARTIN, NIGEL VERNON

J11: 5

MARTIN, WILLIAM HOWARD

C1911-14(1): 73; C7: 295

MASKINONGE

J8: 347

MASSET INLET, B.C. (*see* McClinton Creek)

MASTIGOPHORA (PROTOZOA)

PF1e

MATHER, VERA G.

S36

MATING EXPERIMENTS

NR16: 48 (lobsters)

MATURITY

C1914-15: 87 (hake), 95 (haddock); C3: 281

(spring salmon); C7: 255 (bivalves); C8:

2 (Coregonidae)

- J1: 1 (copepods); J2: 41 (lobster); J3: 159 (herring); J4: 195 (sockeye), 233 (pink salmon); J6: 140 (*Paphia*), 281 (lobster); J7: 176 (lake trout); J8: 347 (maskinonge); J10: 314 (coho and sockeye), 326 (Arctic char), 413 (whitefish); J11 535 (haddock), 827 (lake trout)
- B1: 12 (plaice); B3: 15 (angler); B21: 7 (Atlantic salmon); B25: 12 (haddock); B54: 21 (cod); B81 (L. Manitoba fish); B82: 4 (coregonine fish)
- S72 (little-neck clam); S73 (butter clam); S223 (Atlantic salmon); S237 (kokanee and sockeye); S270 (Ont. salmon); S352 (finback whales)
- NR6: 23 (haddock); NR7: 26, NR16: 42 (lobster); NR17: 29 (Atlantic capelin)
- NS2: 3 (lobster)
- MAVOR, JAMES WATT
C1911-14(1): 25; C1914-15: 145; C1917-18: 111; C1918-20: 125; C1: 101, 353
- MAXWELL, BRIAN E.
J9: 164
- MAYFLIES
C1911-14(2): 113, 131; C7: 177
- MEAD, GILES WILLIS
J10: 560
- MEAL (*see* Fish meal)
- MEDCOF, JOHN CARL
J4: 287; J5: 253; J6: 209, 449, 498; J7: 219
B75
S277; S284; S301
- MEDUSAE (*see* Hydrozoa; Jellyfish)
- Melamphaes cavernosus*
B68: 142
- Melamphaes rugosus*
B68: 141
- MELAMPHID, CRESTED
B68: 141
- MELAMPHID, HIGH-SNOUTED
B68: 142
- Melanogrammus aeglefinus* (*see* Haddock)
- Menidia notata*
S234
- MERGANSERS (*see* Birds)
- MERISTIC CHARACTERISTICS (*see* Morphology)
- Merluccius bilinearis*
NS8: 27
- Merluccius productus* (*see* Hake)
- Mesoplodon densirostris*
S235
- METABOLISM (*see also* Physiology)
J6: 45 (bacteria)
S388 (marine bacteria)
- Microgadus proximus*
B68: 131
- Microgadus tomcod* (*see* Tomcod)
- MICROORGANISMS (*see also* Bacteria)
S370, S375 (role and control)
- Micropterus dolomieu*, *M. salmoides*
S144
- Microstomus pacificus* (*see* Sole, dover)
- MIDGES (*see* Chironomidae)
- MIDSHIPMAN
B68: 336
- MIGRATION AND MOVEMENT
C1914-15: 115 (eel); C1915-16: 43 (coho); C1921: 106 (Pacific herring); C1: 7 (lumpfish), 455 (starfish); C3: 145 (*Littorina*), 170 (*Buccinum*), 265 (Pacific salmon); C4: 453, 471 (Pacific salmon); C5: 3, 37, 55 (sockeye); C6: 184 (whitefish fry), 241 (haddock); C8: 346 (sockeye), 433 (cod)
- J1: 159 (Atlantic salmon), 269 (lobster); J2: 311 (sockeye), 383 (pink salmon), 391 (Atlantic salmon); J3: 26, 421 (sockeye), 403 (pink salmon); J4: 1, 96, 323 (Atlantic salmon), 69 (rainbow trout), 184, 192 (sockeye), 233 (pink salmon), 349 (herring) 491 (brook trout); J5: 84 (starfish), 164 (plankton), 176, 258, 471 (brook trout), 485 (Atlantic salmon) J6: 158 (coho, spring salmon), 164 (pilchard), 217 (pink salmon), 245 (*Salmo gairdneri*), 311, 399 (Atlantic salmon), 483 (sockeye); J7: 88 (sockeye), 417 (herring), 432 (Atlantic

- salmon); J8: 103 (sockeye), 164, 241 (Pacific salmon), 374 (B.C. bottom fishes); J9: 304 (Pacific salmon), 450 (pink and chum salmon); J10: 1 (herring), 293 (coho), 326 (Arctic char), 459 (lemon sole), 548 (spring salmon and trout); J11: 107, 310 (Pacific salmon), 351 (Atlantic dogfish), 362 (salmon parr), 472 (and sense of smell, in coho), 550 (cutthroat trout)
- B14, B15, B26, B27 (Pacific salmon); B16: 3 (sockeye); B21: 6, B51 (Atlantic salmon); B25: 9 (haddock); B31 (pink and chum salmon); B40 (coho); B41 (spring salmon); B57: 12 (Margaree R. salmon); B62: 16 (Pacific crab); B66, B74 (pink salmon); B79: 6 (trout); B86 (salmon at Moricetown Falls); B98 (beluga)
- S42, S67 (sockeye); S131 (brown trout); S164 (lobster); S165, S168, S187, S192, S256, S269, S270, S275, S291, S298, S333 (Atlantic salmon); S171, S193, S221, S240, S247, S254, S260, S285, S327, S343, S363 (B.C. herring); S196, S220, S239, S246, S253, S261 (pilchard); S257, S268 (pink salmon); S293 (European fishes); S300 (Atlantic fishes); S321 (speckled trout—P.E.I.); S322 (Vancouver Island salmon); S356 (high dams and Pacific salmon)
- NR1: 66 (Atlantic salmon); NR8 (lobster); NR14: 9 (Atlantic cod); NR12 (Atlantic salmon); NR15: 55 (Atlantic spiny dogfish)
- NS15: 10 (lobster)
- MILLAR, FREDERICK GRAHAM
J9: 329
- MILLER, F. R.
C1906-10: 277
- MILLER, RICHARD BIRNIE
J6: 334; J7: 176, 190; J11: 550
B72: 31; B95
- MILLER'S THUMB (*Cottus cognatus*)
S144
- MILNE, DONALD JOHNSTON
B86
- MINERAL CONSTITUENTS
C1921: 125 (lobster)
J2: 469 (salmon and pilchard), 473 (coho)
- MINK
B92 (fish as food)
- MINNOWS
B56: 38; B94: 18
S144
- MIRAMICHI R. AND BAY, N.B.
C1917-18: 149, 169 (diseased salmon);
C1918-20: 181 (new algae)
J1: 159 (Atlantic salmon)
B70 (smelt)
S336 (Greenland cod)
- MIXING AND STRATIFICATION (IN NATURAL WATERS)
J1: 133, 171, 227; J2: 141
- MODELS, HYDROGRAPHIC
B83: 76 (Alberni Harbour)
- Modiolus demissus* (see also Mussels)
B77: 25
- Mola mola* (see Sunfish, ocean)
- MOLLUSCS (see also Bivalves; Clams; Gastropoda; Mussels; Nudibranchiata; Oysters; Pteropoda)
C1911-14(1): 43; C1911-14(2): 95
J9: 164 (vitamin B₁₂)
- Molva molva*
J11: 11
- MOORE, LEONARD PATRICK
C7: 413
- MOORHOUSE, VICTOR HENRY KINGSLEY
C7: 465
- MORICETOWN FALLS, B.C.
B86 (salmon migration)
- Morone americana* (see Perch, white)
- MORPHOLOGY
C1901: 20 (*Mya*), 55 (mackerel shark);
C1906-10: 277 (lobster); C7: 477 (elasmobranch viscera); C8: 207 (*Raja*—arteries)
J1: 239 (*Raja*—nerves), 261 (*Raja*—claspers), 469 (barnacles—nerves); J2: 209 (*Chironomus*); J5: 347 (herring); J6: 140 (*Paphia*), 209 (oyster), 419 (*Themisto*);
J7: 505 (*Sarcotaces*); J10: 76 (barnacles—central nervous system); J11: 107 (nares)

- of fishes), 130 (ear of fishes), 171 (meristic characters of yellowtail flounder), 652 (hybrid char), 904 (chars)
- B1: 20 (plaice scales); B7: 9 (anglerfish viscera); B68: 8 (fish—general)
- S1 (Isopoda); S2 (Argulidae); S4 (shrimps); S35 (lymphoid organ, spleen, etc., of shark); S36 (velar apparatus of lamprey); S39 (*Chirodotea*); S53 (brain of ratfish); S78 (ascidians); S99 (pancreas of skate); S100 (adductor muscle of scallops); S169 (hermit crabs); S199 (anterior setae of Polychaeta); S223 (thyroid gland of Atlantic salmon); S231 (fry of coho)
- NR2: 55 (Atlantic capelin)
- MORPHOMETRY (*see* Size)
- Morrhua ductor*
J11: 248
- MORRIS, ROBERT J.
C1: 439
- MORTALITY, FISHING (*see* Abundance, Exploitation)
- MORTALITY, NATURAL OR TOTAL (*see also* Lethal limits)
C1918-20: 29 (B.C. marine organisms—severe winter); C2: 135 (trout fry), 245 (shad); C3: 367 (trout); C5: 203 (trout fry), 361 (*Enchelyopus*); C6: 180 (whitefish eggs)
J3: 26 (sockeye); J4: 184 (sockeye); J5: 43 (theory), 84 (starfish), 172 (salmon lice), 476 (stream fishes—heat); J7: 224 (pink salmon); J8: 103 (sockeye), 383 (brook trout), 479 (flounders); J9: 450 (pink and chum salmon); J10: 293 (coho), 413 (whitefish); J11: 298 (whitefish), 339 (sockeye), 362 (salmon parr), 827 (lake trout)
B1: 25 (plaice); B5: 8 (lobster); B60: 38, 74 (oysters)
S40 (marine animals); S251 (rainbow trout); S283 (P.E.I. oysters—disease); S289 (Atlantic salmon); S292 (natural vs. fishing); S293 (European work); S294 (salmon); S295 (young sockeye); S296 (survey); S340 (related to predators); S359 (effect on population); S364 (Pacific herring and halibut)
- MORTALITY IN SHIPPING LIVE ANIMALS
C1911-14(1): 73 (freezing mummichog)
B33 (lobster); B44 (oyster)
- MORTON, BETTY HELEN
J6: 326
- MOSER R., N. S.
J5: 176 (sea-running brook trout)
- MOSHER L., SASK.
B95: 33 (cisco control)
- MOSSOP, BESSIE K. E.
C1921: 15
S15
- MOTTLEY, CHARLES McCAMMON
C4: 471; C8: 253
J2: 359; J3: 169; J4: 69
S131; S141; S163; S214; S215; S230; S249; S250; S251
- MOULDS
J5: 276, 287; J6: 303; J7: 104, 128; J11: 901
- MOULT
J6: 152 (lobster)
B5: 6, B43: 11 (lobster); B30: 17 (crabs)
NR18: 12 (lobster)
NS15: 24 (lobster)
- MOUNCE, IRENE
C1: 39, 81
- MOUNSEY, YVONNE ADELAIDE
J6: 359
- MOVEMENTS (*see* Migration)
- MUD DEPOSITS (ON NETS)
C7: 295
- MUMMICHOG (*Fundulus heteroclitus*)
C1901: 12; C1911-14(1): 73; C7: 45
S57; S70; S234
- MUNRO, JAMES ALEXANDER
B17: B55
S212; S224; S227
- MURPHY, JOHN FRANCIS
NS10
- MURRAY, J. C.
C1901: 18
- MUSCLE (*see also* Flesh)
C1918-20: 185 (lobster); C3: 437, 457, 467 (fish); C4: 95 (clam), 227 (haddock, lob-

ster, clam), 501 (skate); C6: 1, 375 (haddock), 341 (dogfish); C7: 147 (haddock); C8: 123, 131 (haddock), 311 (halibut), 531 (cod, etc.)
 J4: 63 (cod), 229 (N.S. fish); J5: 32, 197, 203 (cod), 267, 411 (halibut); J6: 152 (lobster), 403 (cod); J7: 585 (cod), 594, 599, 608 (fish); J8: 325; J9: 388 (cod)
 S52 (Atlantic fishes); S63 (haddock and other trawl-caught fish); S81 (B.C. fishes); S100 (scallop)

MUSKELLUNGE
 J8: 347

MUSSELS, FRESHWATER
 C1917-18: 75

MUSSELS, MARINE
 C1921: 15; C4: 121
 J2: 89; J11: 816
 B60: 54; B75: 1; B77: 15
 S15

Mustelus canis (see Dogfish, Atlantic smooth)

MUTTONFISH (see Eelpout)

Mya arenaria (see Clams, Atlantic)

Myctophum californiense
 B68: 113

Mylocheilus caurinum (see Peamouth chub)

MYOSIN
 J7: 585, 599

Myoxocephalus (see also Sculpins)

Myoxocephalus aeneus
 S234

Myoxocephalus octodecimspinosus
 S234

Myoxocephalus polyacanthocephalus
 B68: 259

Myoxocephalus scorpius groenlandicus
 B73: 3

MYSIDACEA (CRUSTACEANS)
 C8: 181 (Pacific)
 J4: 281 (Atlantic)
 B78: 22 (*Mysis*—Great Slave L.)

Mytilus edulis (see Mussels)

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NADEAU, ARISTIDE
 J4: 355; J5: 121

NANAIMO, B.C. (see Departure Bay)

NASS R., B.C.
 C7: 295 (mud on gill nets)

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 S334 (recreational resources)

NAUBERT, JACQUES
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 B68: 266

NEAVE, FERRIS
 C4: 157, 185, 197, C7: 177
 J6: 140, 158, 245; J9: 450
 B74; B84
 S157; S255; S262; S263; S286; S322;
 S334; S339; S382; S391

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 B68: 306

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 S234 (Malpeque Bay)

NEEDLER, ALFRED WALKER HOLLINSHEAD
 C3: 307, 423; C4: 265; C6: 241
 J5: 8, 236, 253
 B22; B44; B48; B75
 S234; S272; S283; S296

NEEDLER, ALFREDA BERKELEY (see also Berkeley, A. A.)
 C7: 283; C8: 237
 J4: 88; J5: 8, 361, 459; J7: 490
 B25; B75
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NEILANDS, JOHN BRIAN
 J6: 368; J7: 94

NELSON R., MAN.
 B79 (trout)

NELSON, JULIUS
 C1915-16: 53

NEMATODA, PARASITIC
 C8: 71, 161, 169
 J10: 539; J11: 267, 673, 894
 B98: 13
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- Nemichthys avocetta*
B68: 122
- Neoliparis atlanticus*
S203
- Neoscopelarchoides dentatus*
B68: 118
- NERVOUS SYSTEM (*see* Physiology)
- NETS (*see* Fishing methods)
- NEW BRUNSWICK (*see also* individual localities)
J1: 171 (tidal mixing, Reversing Falls); J9:
213 (current in Grand Manan Channel)
- NEWCOMBE, CHARLES F.
C1917-18: 5
- NEWFOUNDLAND (*see also* individual localities)
J5: 23 (Pteropoda); J11: 351 (dogfish
tagging)
NR 12 (salmon obstructions)
- NEWTON, DOROTHY E.
C1: 377
- NEWTON, MERLIN V. B.
C7: 341
- NEY, PHYLLIS WINIFRED
J7: 563
S310
- NICHOLLS, JOHN V. V.
C7: 45, 447; C8: 137, 145, 207
- NICOLA L., B.C.
B42: 28 (productivity)
- NILE CR., B.C.
J11: 933
- L. NIPIGON, ONT.
C6: 184 (whitefish)
- NITRATE (*see also* Sodium nitrate)
J2: 1
- NITRITE (*see also* Sodium nitrite)
J8: 195
- NITROGEN
J7: 238
S116
- NOBLE, C.
C2: 115
- NOOTKA SOUND, B.C.
J3: 43 (oceanography)
- NORRIS, MARGARET ELLEN
S388
- Notacanthus chemnitzii*
S235
- Notacanthus phasganorus*
S226
- Notemigonus crysoleucas*
S213
- Notorynchus cepedianus* (*see* Shark, spotted
cow)
- NOVA SCOTIA (*see also* individual localities)
J2: 41 (lobsters); J3: 348 (new annelid)
J5: 105 (cod); J6: 498 (worm in oysters);
J7: 95 (thiaminase in animals), 248 (fer-
tilization of streams); J11: 171 (yellowtail
flounder), 454 (polychaetes)
- NUDIBRANCHIATA (*see also* Gastropoda)
S12, S30, S49 (Pacific)
- NUTRIENTS (IN WATER)
J1: 299; J10: 253, 283
- NUTRITIVE VALUE (*see also* Vitamins)
J2: 439 (sockeye and pink salmon), 457
(pilchard), 461 (lingcod), 463 (canned
coho), 469 (canned salmon and pilchard),
473 (coho), 477 (B.C. oysters); J5: 344
(B.C. crabs, shrimps, clams); J7: 35 (ling-
cod, halibut, lemon sole, Pacific salmon),
94 (aquatic animals), 513 (Pacific herring,
salmon, rockfish), 563 (meal, stickwater,
solubles, liver, viscera); J8: 117 (Pacific
salmon); J9: 129 (cod liver), 164 (inverte-
brates); J10: 64 (herring meal); J11: 355
(cod liver residues)
B25: 28 (haddock); B46 3 (pilchard oil);
B92 (fish for mink)
S162 (canned salmon); S305, S332 (fish);
S373, 374 (herring meal)
- NUTT, DAVID CLARK
J10: 177
- NYLON NETS (*see* Fishing methods)

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OBITUARIES

J4: 228 (W. T. MacClement), 308 (J. Playfair McMurrich); J5: 1 (Philip Cox); J6: 204 (John Dybhavn), 207 (Arthur Willey), 459 (Frère Marie-Victorin); J7: 213 (A.T. Cameron)

OBSTRUCTIONS

B86 (Moricetown Falls, B.C.); B101 (Babine R., B.C.)
NR12 (Newfoundland rivers)

OCEANOGRAPHY, ARCTIC

J8: 378
B88
S304; S361

OCEANOGRAPHY, ATLANTIC

C1906-10: 281; C1914-15: 55, 145, 151, 163;
C1915-16: 72; C1917-18: 127, 295; C1: 101, 353; C4: 137, 271; C6: 255; C7: 91 (Hudson Bay), 256; C8: 398
J1: 121, 133, 227, 279; J2: 115, 141; J3: 189; J4: 339, 378, 424; J5: 236, 377; J6: 460; J7: 1, 355; J8: 332; J9: 223; J10: 97, 146, 148, 155, 177, 394; J11: 32, 42, 198, 229, 404, 419
B5: 10; B22: 7
S20; S21; S27; S43; S44; S48; S136; S139; S178; S182; S201; S203; S204; S210; S211; S226; S271; S316; S317; S346; S358
NR5: 13; NR16: 6

OCEANOGRAPHY (GENERAL)

C7: 73 (absorption of light by water)
B39: 6 (polluted waters)
S103 (measuring ultra-violet light); S105 (energy value of sunlight and moonlight); S172 (chlorinity-salinity conversion); S177 (corrections for reversing thermometers); S189 (colorimetric sea-water analyses); S191 (units for sea-water analysis); S241 (danger of silver nitrate crystals with alcohol); S293, S294 (effect of conditions on fish); S306 (meteorology, geophysics, etc.); S345 (fresh water entering the sea); S347 (oxygen determination); S355 (new water-bottle)

OCEANOGRAPHY, PACIFIC

C1914-15: 133; C1918-20: 35; C1: 41, 73, 81; C4: 9; C7: 295
J3: 43, 93; J5: 398; J8: 378; J9: 42; J10: 125; J11: 14, 501, 799, 853

B15: 7; B34: 12; B39: 3; B80: 17; B83: 1; B91: 3
S19; S56; S67; S75; S83; S112; S123; S174; S190; S344; S345; S376

Occa verrucosa
B68: 283

OCTOPUSES

S245 (B.C. species)

ODONATA (see Insects, aquatic)

ODOURS, REACTION TO

J11: 107 (fishes), 310 (coho and spring salmon), 472 (coho)

O'DONOGHUE, CHARLES HENRY

C1: 143, 441, 455; C3: 47, 247
S8; S11; S12; S30; S35; S49

O'DONOGHUE, ELSIE

C1: 143; C3: 47
S12

(Montopyxis trispinosus (see Sea-poacher, pigmy)

OGDEN, ERIC

S119

OIL (see also Bodying; Decolorization; Drying; Hydrogenation; Liver oil; Pigments; Un-saponifiables; Viscera oil; Vitamins)

OIL, ANALYTICAL VALUES

C8: 507
J2: 285; J4: 478
B89: 359
S87; S152

OIL, CHEMICAL REACTIONS

C7: 505
J2: 13
B37: 21; B59: 107, 420; B89: 107

OIL, COMPOSITION

B37: 39; B59: 31; B89: 26

OIL, DETERIORATION

B37: 25; B59: 175; B89: 168

OIL, FATTY ACIDS OF

J4: 59; J6: 109; J9: 393
B37: 16; B59: 25; B89: 18
S150; S151; S152; S331; S349; S380

OIL, INDUSTRIAL USES

B37: 97; B59: 320; B89: 286

OIL, METABOLISM OF FATS

B59: 97; B89: 98

OIL, NUTRITIONAL USES

J7: 109

B37: 87; B46: 1; B59: 310; B89: 273

S299

OIL, OTHER COMPONENTS

B59: 83; B89: 84

OIL, PHYSICAL PROPERTIES

B37: 21; B59: 152, 420; B89: 145

S87; S150; S151

OIL, PIGMENTS

B59: 97; B89: 78

OIL, PROCESSING

C8: 321

J1: 487; J8: 189

B59: 280; B89: 241

S330

OIL, PRODUCTION

B37: 51; B46: 1; B59: 210; B89: 180

NS3: 5; NS11: 7

OIL, PROPERTIES OF INDIVIDUAL SPECIES (*see also* under each species)

B37: 125; B59: 383, 409, 412; B89: 312, 345, 347

NS3: 20; NS5: 5

OIL, REFINING

B37: 72; B59: 256; B89: 215

S330

OIL, SPECIFICATIONS

B89: 375

OIL, VITAMINS

J11: 357(B)

B59: 54; B89: 46

S55 (A); S86 (D); S97 (D); S299 (general)

OKANAGAN LAKES, B.C.

B56:8 (physical and chemical conditions), 17 (bottom fauna), 27 (fish), 39 (whitefish), 51 (fish cultural problems)

OLIGOCHAETA (*see also* Annelida)

J9: 204

Oligocottus maculosus

B68: 269

Oligocottus rimensis

B68: 268

Oligocottus snyderi

B68: 270

Oncorhynchus (*see* Salmon, Pacific)

Oncorhynchus gorbusha (*see* Salmon, pink)

Oncorhynchus keta (*see* Salmon, chum)

Oncorhynchus kisutch (*see* Salmon, coho)

Oncorhynchus nerka (*see* Salmon, sockeye)

Oncorhynchus nerka kennerlyi (*see* Kokanee)

Oncorhynchus tshawytscha (*see* Salmon, spring)

Oneirodes bulbosus

B68: 338

ONOFREY, EVA

S379; S388

ONTARIO (*see also* individual localities)

C1917-18: 75 (freshwater mussels); C2: 135

(trout planting in two creeks); C6: 165

(whitefish, Bay of Quinte), 445 (whitefish)

J11: 362 (salmon in Duffin Creek)

L. ONTARIO

C1902-05: 22 (effects of dynamite), 46

(effects of sawdust); C6: 225 (ciscoes)

J9: 325 (temperature)

OPAH

B68: 138

Ophiodon elongatus (*see* Lingcod)

OPHIURA (BRITTLE STARS)

C3: 317

ORGANS (*see* Kidney; Liver; Viscera, etc.)

OSBURN, RAYMOND CARROLL

C7: 361

OSMERIDAE (*see* Smelts)

Osmerus mordax (*see* Smelt, American)

OSMOPHILISM

J11: 901 ("dun" mould)

OSTRACODA (CRUSTACEANS)

C2: 295; C6: 397

J9: 16; J11: 245

S9; S50; S104

Ostrea gigas, *O. lurida* (see Oysters, Pacific)

Ostrea virginica (see Oysters, Atlantic)

OTARIIDAE (see Seals, fur)

OTOLITHS (see Age determination)

OUTRAM, DONALD NOEL

S343; S363

OXYGEN DETERMINATION (see Limnology;
Oceanography; Pollution)

OXYGEN REQUIREMENTS

J11: 933 (salmon eggs)

Oxylebius pictus

B68: 235

OYSTER FARMING (see Culture)

OYSTERS (ATLANTIC)

C1906-10: 217, 281; C1914-15: 55, 145;

C1915-16: 53; C7: 283

J4: 287; J5: 253, 361; J6: 209, 449, 498;

J7: 545

B22; B34: 29; B44; B48; B60; B77: 28

S277; S283

OYSTERS (PACIFIC)

J2: 477

B34

S132; S186; S245

P

PAINT FILMS (see Films)

PALATABILITY (OF FISH, ETC.—see also Quality)

C7: 57 (haddock as dog food)

J7: 449 (cod fillets)

B1: 12 (plaice); B2: 22 (lumpfish); B3: 9

(angler); B4: 10 (muttonfish); B10: 17

(lobster paste)

Pallasina barbata

J9: 143

PANCREAS

C7: 1

S17; S22; S99

PANDALIDS, *Pandalus* (see Shrimps)

PANTOPODA (ARTHROPODA)

AF10n

Paphia (see Clams, Pacific)

Paralichthys oblongus

NS14: 21

Paraliparis deani

B68: 305

PARASITES (see also Cestoda; Copepoda;
Nematoda; Protozoa; Trematoda)

C1917-18: 152, 171; C2: 459; C5: 193;
C6: 445

J7: 186; J8: 207; J11: 267 (on marine
mammals), 673 (B.C. fishes)

B4: 11; B62: 13; B78: 22; B93: 37; B98: 13

S94; S108; S111; S149; S202; S243; S311

NR9 (on trout), NR16: 39 (on lobster),

NR17: 135 (on capelin)

Parophrys retulus (see Sole, lemon)

PASSAMAQUODDY BAY

C1901: 1 (Atlantic Biological Station), 19
(clams), 41 (flora); C1906-10: 1 (Atlantic
Biological Station), 83 (crustaceans), 243
(diatoms), 265 (flora), 281 (oysters and
oceanography); C1911-14(1): 1 (plank-
ton), 25 (Sporozoa), 43 (Mollusca), 47
(fungi); C1914-15: 151 (oceanography);
C1915-16: 1 (winter plankton); C1917-18:
175 (smoking haddock), 295 (oceanog-
raphy); C1918-20: 49 (plankton), 63
(diatoms), 99 (spoilage); C1921: 17 (mus-
sels); C2: 307 (gribble); C4: 527 (free-
living copepods); C5: 361 (*Enchelyopus*),
423 (parasitic copepods); C7: 127 (silica
in water), 277 (new polychaete); C8: 357
(diatoms)

J2: 89 (mussels), 95, 401 (herring); J5: 365
(copepods as herring food); J10: 1
(herring), 97 (oceanography); J11: 816
(parasitic copepods), 963 (flounder para-
sites)

S3 (copepods); S5 (fauna); S15 (mussels);
S32 (diatoms); S111 (protozoan fish
parasites); S159 (rare fishes); S211
(international investigations); S346 (sar-
dines)

- PASTE
B10 (lobster)
- PATHOLOGY (*see also* Diseases)
C2: 129
- PATTERSON, OLIVE GAIR
C1917-18: 175
- PAUL L., B.C.
J4: 69 (rainbow trout)
B42: 3 (productivity studies)
S214, S215, S230, S250, S251 (rainbow trout)
- PEAMOUTH CHUB (*Mylocheilus caurinum*)
B55: 34 (food); B56: 36
S144
- PEARL-EYE
B68: 118
- Pecten* (*see* Scallops)
- PENTOSE COMPOUNDS (*see* Carbohydrates)
- Peprilus simillimus* (*see* Pompano, California)
- PEPTONES
J7: 552
- Perca flavescens* (*see* Perch, yellow)
- PERCH, BLUE (*Taeniotoca lateralis*) (*see* Sea-perch, blue)
- PERCH, SILVER (*Phanerodon furcatus*) (*see* Sea-perch, white)
- PERCH, WHITE (*Morone americana*)
J7: 22
S213
- PERCH, YELLOW (*Perca flavescens*)
B81: 4; B94: 20
S144; S213
- Percopsis omiscomaycus* (*see* Trout-perch)
- PERIODICITY (*see* Abundance)
- PERRY, H. MARGARET
S41
- Petromyzon marinus* (*see* Lamprey, sea)
- pH (*see* Hydrogen-ion)
- Phanerodon furcatus* (*see* Sea-perch, white)
- PHOCIDAE (*see* Seals, hair)
- Pholis gunnellus*
S234
- Pholis laetus*
B68: 180
- Pholis ornatus*
B68: 179
- PHOSPHORUS COMPOUNDS
J6: 152 (lobster); J7: 608 (skeletal muscle);
J10: 253 (phytoplankton), 283 (plankton)
- PHOTOSYNTHESIS
C6: 41 (marine algae)
- PHYSICAL CONDITIONS OF WATER (*see* Limnology; Oceanography; Physiography)
- PHYSICS, GENERAL
B11
- PHYSIOGRAPHY
C1906-10: 4 (St. Andrews, N.B.), 295 (Departure Bay, B.C.); C1915-16: 109 (St. Croix R. and Passamaquoddy Bay, N.B.)
J8: 1 (Great Slave L.)
B42: 3 (Paul L., B.C.); B56 (Okanagan L., B.C.); B57: 4 (Margaree R., N.S.); B72 (N.W.T.); B83: 5 (Alberni Inlet, B.C.); B84: 3 (Cowichan R., B.C.); B86 (Morice-town Falls, B.C.); B94: 2 (Arctic and Subarctic)
S72 (B.C. clam districts); S123 (B.C. fiords); S163 (Jones L., B.C.); S178 (Scotian shelf); S270 (Ontario salmon streams); S318 (P.E.I.)
- PHYSIOLOGY, CIRCULATORY SYSTEM (*see also* Blood)
C1902-05: 24; C5: 83; C7: 17, 31, 439;
C8: 207
S47; S53; S119
- PHYSIOLOGY, DIGESTION
C4: 107, 317; C7: 1, 11, 45, 57
J1: 145, 251, 497; J2: 401; J5: 217
S57; S70; S71; S78; S99; S216; S377
- PHYSIOLOGY, GENERAL
B85: 19 (Pinnipedia)
S39 (*Chiridotea*); S58 (dogfish reactions to salinity); S68 (asphyxial hyperglycemia)

- in lingcod); S95 (Ascidacea); S169 (hermit crabs); S207 (overexertion causing death); S388 (nutrition of marine bacteria)
- PHYSIOLOGY, HUMAN
J5: 211
- PHYSIOLOGY, INTEGUMENT AND SKELETON
J6: 209
- PHYSIOLOGY, NERVES AND MUSCLES
C1902-05: 29; C1906-10: 277; C4: 495;
C6: 335; C7: 31, 447, 477; C8: 145
J1: 239, 251, 261
S8; S33; S47; S51; S53; S66; S100; S157
- PHYSIOLOGY, RESPIRATORY SYSTEM
C1901: 10; C1902-05: 24; C2: 110; C5:
193; C6: 315; C7: 71
J4: 267; J5: 485; J6: 435
S7; S16
- PHYSIOLOGY, REPRODUCTION
C7: 283
J1: 261; J6: 140, 252; J8: 125
- Phytichthys chirus*
B68: 174
- PICKARD, GEORGE LAWSON
J10: 125
- PICKLING (*see also* Salt fish)
C1: 279 (herring)
B19 (mackerel); B47: 21, B52 (herring)
- PIGMENT
C1901: 11; C1915-16: 86; C6: 188, 230,
J3: 469; J4: 55, 209; J5: 276; J7: 184;
J9: 169; J10: 320
B59: 76; B89: 78
- PIKE, GORDON CHESLEY
J8: 275; J10: 320
S348; S352; S393
- PIKE, NORTHERN (*Esox lucius*)
B72: 41, 81; B94: 19
S144
- PIKE-PERCH (*see* Walleye)
- PILCHARD (BIOLOGY)
C7: 245
J6: 164
B36; B38; B68: 77
S120; S128; S176; S183; S194; S196;
S220; S239; S246; S253; S261; S264
- PILCHARD (TECHNOLOGY)
C6: 355, 365 (oil); C7: 413 (oil), 521 (oil);
C8: 321 (oil)
J1: 487 (oil); J2: 13 (oil), 457, 469; J3: 177;
J4: 55, 59 (oil); J5: 428, J6: 109 (oil)
B35; B36: 19, B37: 125 (oil); B39; B46,
B59: 383, B89: 316 (oil)
S87, S97 (oil)
- PINHEY, KATHLEEN F.
C3: 179, 331
- PINK SALMON (*see* Salmon, pink)
- PIPE-FISH (ATLANTIC) (*Siphostoma fuscum*)
S234
- PIPE-FISH (PACIFIC) (*Syngnathus griseo-
lineatus*)
B68: 127
- PISCICIDES (*see* Poisons)
- PITUITARY GLAND
J11: 57 (of salmon)
- PIVNIK, HILLARD
J7: 378
- PLAICK, AMERICAN (*Hippoglossoides plates-
soides*)
J10: 539 (parasite); J11: 954 (trematodes)
B1
S235
NR4: 8
NS14: 12
- PLANKTON (ARCTIC)
J6: 419; J9: 223
B73
S3; S361
- PLANKTON (ATLANTIC)
C1902-05: 1, 29; C1906-10: 221; C1911-
14(1): 1, 11; C1915-16: 1; C1917-18:
217; C1918-20: 49, 85, 93; C3: 179,
331; C8: 357
J1: 279; J2: 95, 422; J3: 189; J5: 164;
J7: 502; J9: 223; J10: 211; J11: 239
S3; S6
- PLANKTON, GENERAL
J4: 19, J10: 238 (sampling)
S121 (growth related to silica); S158 (sta-
tistical treatment of sampling)

PLANKTON (INTERIOR WATERS)

C2: 359; C4: 343; C5: 381
J1: 67; J4: 19, 33; J5: 138, 164; J7: 22;
J8: 383; J9: 417; J10: 224, 238, 253, 283;
J11: 479, 638
B42: 16, 25, 27, 28, 29; B56: 14, 58; B72:
36, 54, 74
S138; S228; S297

PLANKTON (PACIFIC)

C1: 81; C2: 531; C7: 249
S80; S98; S123

PLASTIC (FROM PROTEIN)

C8: 531

Platichthys stellatus (see Flounder, starry)

PLANTINGS OF FISH (see Hatcheries)

PLECOPTERA (see Stoneflies)

Pleuronichthys coenosus

B68: 320

Pleuronichthys decurrens (see Sole, curl-fin)

Pneumatophorus diego

B68: 163

POINT ATKINSON, B.C.

J11: 22, 803 (tidal measurements)

POISONS, GENERAL (see also Disinfectants)

C4: 1 (for woodborers); C6: 423 (metals of
water sampling bottle); C7: 67 (fresh
water toxic to *Pseudopleuronectes*)
J7: 490 (toxicity in shellfish); J8: 486 (metals
toxic to lobsters); J10: 253 (phyto-
plankton autotoxins and antibiotics)
B75 (found in shellfish)

POISONS, FOR LAKES

J7: 22 (copper sulphate in Tedford L., N.S.)
S137, S213 (copper sulphate in L. Jesse,
N.S.); S138, S206 (copper sulphate in
various lakes); S229 (copper sulphate and
rotenone in N.S. lakes); S242 (rotenone
in Potter's L., N.B.); S311 (survey of use
in Canada)

Polistotrema stouti

B68: 49

Pollachius virens (see Pollack)

POLLACK, POLLOCK

C1901: 61; C1917-18: 111; C3: 469; C8:
531 (plastic from muscle)
B7: 7; B59: 407 (oil), B89: 340 (oil)
S54
NS8: 24

POLLUTION OF WATER

C1901: 9 (pulpmill); C1902-05: 37, 111
(sawdust); C2: 69, C5: 436 (sewage)
J5: 1, J7: 55 (sewage)
B39 (pilchard waste); B60: 78 (oysters as
carriers); B72: 92 (N.W.T.); B83 (pulp-
mill)

POLYCHAETA (see also Annelida)

C1: 203 (near Nanaimo, B.C.), 441 (*Eudis-
tylia gigantea*); C2: 285, C3: 405, C4: 305,
C6: 65 (near Nanaimo); C7: 277 (*Haplo-
branchus atlanticus*), 309 (west coast of
Vancouver Is.)
J3: 348 (*Hemipodia canadensis*); J6: 120
(Hudson Bay), 472 (Bay of Fundy), 498
(*Polydora*); J7: 363 (*Odontosyllis* at
Bermuda); J8: 488 (*Trypanosyllis ingens*);
J10: 85 (*Micronereis nanaimoensis*); J11:
326 (*Dodecaceria fewkesi*), 454 (new
records), 507 (eastern Arctic)

AF9b

PF9b(1) (Errantia); PF9b(2) (Sedentaria)
S5 (Atlantic Biological Station); S10 (man-
ganese in tubes); S13 (pentose); S14
(organic constituent of tubes); S65 (new
Chaetopterida); S106 (green bodies);
S153 (Spionidae); S181 (Syllidae); S199
(*Rhamphobrachium longisetosum*); S307
(Polychaeta Sedentaria); S320 (*Potam-
ethus elongatus*); S353 (swarming); S371,
S380 (*n*-octyl alcohol and fatty acids in
Eudistyla)

Polypera greeni

B68: 301

POLYZOA (see Bryozoa)

POMFRET

B68: 143

Pomolobus pseudoharengus (see Alewife)

Pomoxis sparoides

S144

POMPANO, CALIFORNIA

B68: 201

S302

POPULATION STUDIES (*see* Abundance; Statistics; etc.)

PORGY
B68: 154

Porichthys notatus
B68: 336

Poroclinus rothrocki
B68: 187

Poronotus triacanthus (*see* Butterfish)

PORPOISE
B59: 416 (oil)

PORT JOHN, B.C.
J11: 69 (salmon behaviour), 624 (limnology)

POTTER, GILBERT DAVID
J11: 63

POUT (*see* Bullhead; Burbot; Eelpout; etc.)

PRAWNS (*see* Shrimps)

PREDATORS (*see also* Birds)
C1915-16: 41 (of coho); C1917-18: 5 (sea-lions); C1921: 30 (of mussels); C1: 291 (of fish near Nanaimo); C2: 138 (of trout fry), 411 (of sockeye), 458 (of cunner); C3: 367 (of trout); C5: 80 (of sockeye), 203 (of trout)
J2: 89 (of mussels); J5: 293, 315 (of salmon); J9: 450 (of pink and chum salmon); J10: 211 (theory); J11: 362 (on salmon parr), 609 (effect on survival)
B25: 21 (of haddock); B30: 17 (of crabs); B60: 43 (of oysters); B93: 47 (seals)
S50 (of Entomostraca); S141 (pond culture); S148 (of Pacific salmon); S160 (fur seals); S205 (fish culture); S295 (of sockeye); S340 (theory); S341 (of trout); S385 (control at Crecy L., N.B.)
NR17: 132 (of Atlantic capelin)

PREDICTION (*see* Abundance)

PRÉFONTAINE, GEORGES
J6: 458

PRESERVATIVES (FISHERY PRODUCTS)
J3: 439; J4: 327, 355; J5: 36, 121, 148, 244, 249, 265, 276; J6: 17, 63, 233, 257, 349, 441; J7: 101, 137, 155, 221, 237, 421, 461, 536; J10: 69
B100: 26
S222; S337; S370; S375

PRESS LIQUOR (*see* Stickwater)

PRIEST-FISH
B68: 209

PRINCE ALBERT PARK, SASK.
J2: 227 (physical and chemical studies)

PRINCE, EDWARD ERNEST
C1901: Preface, 1, 55; C1902-05: *iii*, 95, 121; C1906-10: *v*; C1911-14(1): *i*; C1911-14(2): *i*; C1915-16: *v*, 86; C1917-18: *v*; C1918-20: 5
J3: 186

PRINCE EDWARD ISLAND (*see also* individual localities)
C1906-10: 217 (oysters and clams); C1914-15: 55, C1915-16: 53 (oysters)
S278, S279 (ponds in National Park); S283 (oyster disease); S318 (speckled trout)

Prionace glauca (*see* Shark, blue)

Prionistius macellus
B68: 261

Prionotus carolinus
S159

PRITCHARD, ANDREW LYLE
C5: 467; C6: 225
J2: 383; J3: 403; J4: 141, 233; J6: 217, 392; J7: 224
B14; B31; B40; B41; B65; B66
S129; S148; S232; S236; S248; S268; S287; S288

PROCESSING (*see also* Freezing; Pickling; Salt fish; Smoking)
B9 (dried fish); B10 (lobster paste); B19: 6 (pickled mackerel); B20 (frozen haddock); B37, B59: 256, B89: 215 (oils); B61: 63 (grading oysters); B90: 13 (salmon)
NS1: 18 (various methods for codfish)

PRODUCTIVITY (*see also* Abundance; Limnology)
J8: 369 (clams), 383 (Charlotte Co. lakes, N.B.); J10: 224 (plankton in Western lakes; J11: 624 (Port John L., B.C.)
B42: 1 (Kamloops lakes); B56: 19 (Okanagan L.); B72: 87 (N.W.T.)
S37 (of lakes); S295 (method of computation for fishes)

- Prosopium* (ROUND WHITEFISHES)
 C8: 6 (*quadrilaterale*)
 J5: 131, 337 (*williamsoni*); J10: 51 (*cylindraceum*)
 B32: 44, B55: 37, B56: 39 (*williamsoni*);
 B72: 41, B82: 1, B94: 16 (*cylindraceum*)
 S144 (*quadrilaterale*, *williamsoni*)
- PROTEIN FRACTIONS
 J7: 585 (extraction), 594 (colorimetric estimation), 599 (denaturation by freezing)
- PROTEINS (*see also* Nutritive value)
 C1921: 125 (lobster); C4: 325, C6: 1 (haddock); C8: 311 (halibut), 531 (plastic from)
 J3: 177 (pilchard stickwater); J4: 412 (Atlantic cod); J7: 35 (lingcod, lemon sole, Pacific salmon, halibut); J8: 74 (Maillard reaction), 325 (Atlantic cod); J9: 129, 390 (Atlantic cod)
 S299 (by-products); S324 (denaturation); S335 (separation of cobalamines); S351 (Maillard reaction)
 NS11: 11 (fish meal)
- PROTOZOA (*see also* Flagellata, Foraminifera)
 C1911-14(1): 25; C1914-15: 83; C2: 507, 531; C7: 213
 J6: 419; J7: 502; J11: 673
 PF1a (Lobosa), 1b (Reticulosa), 1c (Heliozoa), 1d (Radiolaria); PF1e (Mastigophora); PF1f (Ciliata), 1g (Suctorina)
 S11; S28; S76; S88; S111; S166; S243
 NR5 (*Ceratium*)
- PROW-FISH
 B68: 198
- PROXIMATE ANALYSIS (*see* Chemical composition)
- Psetichthys melanostictus*
 B68: 313
- Pseudacris nigrita septentrionalis*
 B94: 25
- Pseudomonas* (*see* Bacteria)
- Pseudopleuronectes americanus* (*see* Flounder, winter)
- Pseudopleuronectes dignabilis*
 NS14: 19
- Psychichthys affinis*
 S226
- Psychrolutes paradoxus*
 B68: 278
- PTEROPODA
 J5: 23; J11: 244
- Ptilichthys goodei*
 B68: 189
- Ptychocheilus oregonense* (*see* Squawfish, Columbia)
- PUBLICATION LISTS
 C1921: 167
 B28; B87
- PUDDLING
 S301 (by gulls)
- PUGSLEY, LEONARD IRVING
 J4: 312, 396, 405, 472; J5: 344, 428
- PULP-MILL POLLUTION (*see* Pollution)
- PUMPKINSEED (*Lepomis gibbosus*)
 C5: 457
 S144
- Pungitius pungitius*
 S234
- PYCNOGONIDA (ARTHROPODS)
 J5: 459
 S126
- PYLORIC CAECA (*see also* Enzymes; Vitamins A and D)
 J3: 473; J6: 392
- Q
- QUAHAUGS (*see also* Clams, Atlantic)
 C1914-15: 73
 J7: 545
- QUALITY OF FISH (*see also* Palatability; Trimethylamine)
 J4: 162 (canned salmon); J5: 197 (Atlantic cod); J6: 303 (dehydrated fish)
 B76 (whitefish); B100 (fresh fillets)
 S309 (fresh and frozen fish); S324 (frozen and stored fish)

QUAYLE, DANIEL BRANCH
J4: 53; J6: 140; J8: 369
S238; S245

QUEBEC (*see also* individual localities)
C3: 235 (parasite of pike-perch)

QUEEN CHARLOTTE Is., B.C. (*see also* McClinton Creek)
J1: 503 (hydroids)
B40: 3 (tagging coho); B41: 4 (tagging spring salmon); B65: 4 (food of spring and coho salmon); B91: 1 (crabs on Graham Is.)
S147 (hydroids)

QUIGLEY, JOHN PAUL
S58

QUILL-FISH
B68: 189

QUILL LAKES, SASK.
C1921: 155 (diatoms); C1: 125 (fishery possibilities)

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RADCLIFFE, ROLAND WOOTTON
J8: 67

RADIOLARIA (PROTOZOA)
PF1d

Radulinus asprellus
B68: 263

RAG-FISH, BROWN
B68: 333

RAG-FISH, FAN-TAILED
B68: 332

RAINFALL (*see* Flow; Weather)

Raja (*see* Skates)

Raja abyssicola
B68: 67

Raja binoculara
B68: 63

Raja diaphanes (*see* Skates)

Raja erinacea (*see* Skates)

Raja kincaidi
B68: 66

Raja laevis (*see* Skates)

Raja rhina
B68: 62

Raja scabrata
S234

Raja stellulata
B68: 64

Rana sylvatica cantabrigensis
B94: 24

RANCIDITY
J7: 137, 237, 522; J9: 393

RANKIN, G. P.
C4: 107

RAT, ALBINO
J6: 63, 109; J7: 35, 74; J11: 58

RATFISH (*Hydrolagus collieri*)
B37: 148 (oil); B68: 71; B89: 342 (oil)
S13; S47; S53; S58; S81; S82

RATHBUN, MARY J.
AF10m

RAT-TAIL, COMMON (*Macrourus bairdi*)
S226

RAWSON, DONALD STRATHEARN
J2: 227; J8: 1, 207; J10: 224, 486
B42; B56; B72: 45, 69
S197

RAY, ELECTRIC
B68: 70

RAY, RAT-TAILED STING
B68: 68

RAYS (*see also* Elasmobranches; Skates)
AF12e

REACTIONS OF ANIMALS (*see also* Currents; Drugs; Flow; Light; Odours; Salinity; Sound; Taste; Temperature)
C7: 465 (to sound)
J10: 254 (to environmental conditions—phytoplankton)

S42 (olfactory sense—salmon); S51 (spinal reflexes—skate); S100 (adductor mechanism of *Pecten*); S207 (of fish out of water); S215 (to full moon—rainbow trout); S275 (to environment); S289 (to environment—Atlantic salmon); S356 (attracting and guiding Pacific salmon)

RECIPES FOR COOKING FISH
B20: 53

RECRUITMENT (TO A FISH STOCK)
J5: 43; J11: 559

RED DEVIL
B68: 184

RED SNAPPER (*see* Snapper, red)

REDDENING (*see* Discoloration)

REDDS
J11: 933 (salmon)

REDFISH (*Sebastes marinus*)
J10: 590; J11: 250
S235
NR4: 15

REDOX INDICATORS
J7: 567

REDUCTION (OF FISH OR OFFAL) (*see also* Oil, production of)
C1918-20: 125 (elasmobranchs)
B35, B36: 19 (pilchard); B39 (pollution);
B47: 26 (herring)

REED, GUILFORD BEVIL
C2: 1; C4: 227, 257; C5: 103
J7: 217
B8
S96

REFLEXES (*see* Reaction)

REFRIGERATION (*see also* Freezing)
C1: 279; C7: 495; C8: 475
J7: 378; J8: 111
B11: 28; B20: 12; B24: 1; B44: 1; B49: 7
S156 (ice glaze); S309; S323; S324; S338
(jacket principle); S332

REGULATION (*see* Management)

REID, HELEN
C5: 457

REID, MARGARET E.
C4: 431
S6

Reinhardtius hippoglossoides
NS14: 11

Remilegia australis
B68: 329

Remora remora (*see* Sharksucker, blue)

REMPEL, JACOB GERHARD
J2: 209

REPRODUCTION (*see also* Physiology, reproduction)

C1901: 27 (*Mya*); C1915-16: 74 (oyster);
C1918-20: 75 (muttonfish); C1921: 107
(Pacific herring); C1: 9 (lumpfish), 292
(Pacific fish); C2: 183 (shad), 439 (cunner);
C3: 270 (spring salmon); C4: 19
(*Bankia*), 413 (*Littorina*), 440 (cunner),
443 (mackerel); C5: 33, 47 (sockeye),
361 (*Enchelyopus*), 451 (whitefish), 465
(pumpkinseed); C6: 165 (whitefish), 225
(cisco); C7 255 (bivalves), 325 (ciscoes);
C8: 2 (*Coregonidae*), 20 (Hudson Bay
fishes), 346 (sockeye), 421 (lobster)

J1: 1 (copepods), 159 (Atlantic salmon);
J2: 209 (*Chironomus*), 223 (lobster), 311
(sockeye), 383 (pink salmon); J3: 339
(lobster), 403 (pink salmon); J4: 69 (rain-
bow trout), 96 (Atlantic salmon), 151, 210
(sockeye), 287 (oysters), 337 (*Zoarces*);
J5: 71 (lobster), 84 (starfish), 105 (cod),
145 (*Cladocera*); J6: 37, 311 (Atlantic
salmon), 140 (*Paphia*), 217 (pink salmon),
419 (*Themisto*); J7: 176 (lake trout),
224 (pink salmon), 363 (*Odontosyllis*),
417 (herring); J8: 134 (amphipods),
178, 453 (sockeye); J9: 1 (Arctic char),
42 (herring), 223 (zooplankton), 450 (pink
and chum salmon); J10: 85 (*Micronereis*),
293 (coho), 326 (Arctic char), 413 (white-
fish); J11: 1 (trout perch), 559 (related
to density of stock)

B1: 14 (plaice); B2: 11 (lumpfish); B3: 9
(angler); B4: 10 (muttonfish); B5 (lob-
ster); B17 (herring); B18: 3, B54: 17
(cod); B21: 6 (Atlantic salmon); B22:
15, B60: 6 (oysters); B25: 12 (haddock);
B30: 11 (crabs); B50, B53: 2 (salmon,
artificial); B56: 48 (whitefish); B64: 8
(smelt); B79: 4 (speckled trout); B84:
30 (Pacific salmon); B98: 10 (beluga)

- S6 (*Sagitta elegans*—Bay of Fundy); S12 (nudibranchs); S72, S73 (clams); S95 (ascidians); S164 (lobsters); S194 (pilchard); S214 (trout—loss of weight); S237 (kokanee and sockeye); S272 (haddock); S282, S288 (adequate number of adult Pacific salmon); S289 (Atlantic salmon); S294 (relation to recruitment); S327, S343, S363 (B.C. herring)
- NR2: 38 (Atlantic capelin); NR7: 30 (lobster); NR9 (various trout); NR14: 87 (Atlantic cod); NR15: 13 (Atlantic spiny dogfish); NR17: 33 (Atlantic capelin)
- NS15: 12 (lobster)
- REPRODUCTIVE RATE
C1902-05: 2 (Infusoria)
J10: 211 (theory), 326 (Arctic char)
S29 (algae, as affected by colour of light)
- RESPIRATION (*see* Physiology)
- RETICULOSA (PROTOZOA)
PF11b
- RHEOTAXIS (*see* Flow)
- Rhamphocottus richardsoni*
B68: 280
- Rhinichthys cataractae* (*see* Dace, longnose)
- Rhinogobiops nicholsi*
B68: 167
- RICE, CHRISTINE E.
C4: 95, 227
- RICE, F. A. H.
S273; S274
- RICHARDS, JAMES FREDERICK
J7: 430
- RICHARDSON, GORDON HOWARD
S350
- Richardsonius balteatus* (*see* Shiner, redside)
- RICKER, WILLIAM EDWIN
J3: 363, 450; J4: 19, 33, 192; J5: 43, 293, 315; J9: 204; J10: 293; J11: 559
S125; S158; S167; S200; S208; S237; S295; S340; S359; S364; S381
- RIDDELL, WILLIAM ANDREW
J2: 1, 463, 469, 473
- RIGBY, MARGARET SOPHIA LAIRD
B28
- RIGOR MORTIS
C3: 457
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- RILEY, GORDON ARTHUR
J10: 211
- Rimicola eigenmanni*
B68: 335
- RITCHIE, A. D.
S38; S52; S100
- ROBERTSON, ALBERT DUNCAN
C1911-14(2): 95; C1914-15: 55
- ROBERTSON, JAMES GRANT
J11: 624
- ROBINSON, C. B.
C1902-05: 71
- Roccus lineatus*
S234
- ROCKFISH, BANDED
B68: 229
- ROCKFISH, BIG-EYED
B68: 222
- ROCKFISH, BLACK
B68: 208; B89: 337 (oil)
- ROCKFISH, BLACK-THROATED
B68: 219; B89: 337 (oil)
- ROCKFISH, BROWN
B68: 223
- ROCKFISH, COPPER
B68: 225; B89: 337 (oil)
- ROCKFISH, GREEN-STRIPED
B68: 221
- ROCKFISH, LOBE-JAWED
B68: 217
- ROCKFISH, LONG-JAWED
B68: 215
- ROCKFISH, OLIVE-BACKED
B68: 216

ROCKFISH, ORANGE (*Sebastes pinniger*)
B59: 403 (oil); B68: 210; B89: 337 (oil)

ROCKFISH, ORANGE-SPOTTED (*Sebastes maliger*)
B68: 226; B89: 337 (oil)
S59; S81; S82

ROCKFISH, RED-STRIPED
B68: 214

ROCKFISH, SPINY-CHEEKED
B68: 230

ROCKFISH, VERMILION
B68: 212

ROCKFISH, WILSON'S
C7: 323
B68: 213

ROCKFISH, YELLOW-STRIPED
B68: 227; B89: 337

ROCKFISH, YELLOW-TAILED
B68: 207

ROCKFISHES (*Sebastes*)
C7: 323
J4: 472 (oil); J5: 148; J7: 35, 505, 513
(amino acid); J8: 76 (Maillard reaction)

ROCKLING, FOUR-BEARDED
C5: 109, 361
J11: 250
NS8: 28

ROGERS, HAROLD M.
J5: 164

RONQUIL
B68: 157

Ronquilus jordani
B68: 157

ROSE, ROBERT CHARLES
J10: 521

ROSEFISH (*see* Redfish)

ROSS, R. A.
B10

ROTENONE (*see* Poisons)

ROTIFERA
C4: 77

RUDDER-FISH, BROWN
B68: 203

ROUND WHITEFISHES (*See* *Prosopium*)

ROUNDWORMS (*see* Nematoda)

RUMINANTS
S377 (stimulants for digestion by)

RUN-OFF (*see* Flow)

RUSTING
C1: 279 (herring)

RYERSON, C. G. S.
C1911-14(2): 165

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SABLEFISH (*see* Blackcod)

SADLER, WILFRED
C1917-18: 181, 217; C1918-20: 103
B12

Sagitta elegans
S6 (reproduction—Bay of Fundy)

SAILOR-FISH
B68: 266

SAINT (*see* St.)

SALINITY (*see* Limnology; Oceanography;
Salinity, reactions to)

SALINITY, REACTIONS TO
C3: 149 (gastropods); C4: 9 (wood-borers);
C5: 109 (*Enchelyopus*), 475 (skate blood);
C8: 403 (plankton diatoms)
J2: 485 (lobster larvae); J4: 409 (Atlantic
salmon); J5: 84 (starfish), 253 (oysters);
J6: 399 (salmon parr), 498 (mudblister
worm); J8: 164 (chum and coho fry);
J9: 169 (brook trout), 377 (red halophiles),
388 (cod muscle)
B1: 19 (plaice); B5: 3 (lobster); B22: 15,
B34: 11 (oyster); B57: 49 (salmon)
S40 (marine animals); S45 (wood-borers);
S58 (dogfish); S78 (ascidians' digestion)

Salmo clarki (*see* Trout, cut-throat)

Salmo gairdneri, *S. irideus*, *S. kamloops* (*see*
Trout, rainbow)

- Salmo salar* (see Salmon, Atlantic)
- Salmo trutta* (see Trout, brown)
- SALMON, ATLANTIC (*Salmo salar*) (BIOLOGY)**
 C1917-18: 149, 169; C3: 305
 J1: 159; J2: 299, 379, 391, 499; J3: 169, 323; J4: 1, 48, 96, 323, 409, 441; J5: 172, 227, 440, 485; J6: 24, 37, 90, 311, 399; J7: 363, 432; J11: 255, 362, 933
 B21; B32: 35; B51; B57; B58; B68: 93; B84: 23; B94: 6; B99
 S41; S140; S165; S168; S173; S175; S187; S188; S192; S205; S223; S225; S234; S256; S259; S269; S270; S271; S275; S276; S280; S289; S291; S298; S329; S333
 NR1; NR9; NR12; NR13
 NS6: 12
- SALMON, ATLANTIC (TECHNOLOGY)**
 J1: 179
- SALMON, BLUEBACK** (see Salmon, coho and sockeye)
- SALMON, CHINOOK** (see Salmon, spring)
- SALMON, CHUM (*Oncorhynchus keta*) (BIOLOGY)**
 C1918-20: 22; C5: 32, 46
 J8: 125, 164, 241; J9: 450; J10: 300, 523; J11: 63 (androgens), 69, 933
 B14: 8; B31: 10; B68: 86; B90; B94: 6; B96
 S129; S202
- SALMON, COHO (*Oncorhynchus kisutch*) (BIOLOGY)**
 C1915-16: 39; C1918-20: 18; C3: 277; C4: 455; C5: 32, 46
 J2: 463; J6: 158; J8: 67, 164, 241; J10: 293, 523; J11: 69, 310, 472, 590, 933
 B14: 5; B15; B32: 42; B40; B65: 15; B68: 84; B84: 8; B94: 7
 S148; S202; S231; S236; S263; S322
- SALMON, DOG** (see Salmon, chum)
- SALMON, KING** (see Salmon, spring)
- SALMON, KOKANEE** (see Kokanee)
- SALMON, HUMPBAC** (see Salmon, pink)
- SALMON, LANDLOCKED** (see Salmon, Atlantic)
- SALMON, PACIFIC SPECIES (*Oncorhynchus*) (BIOLOGY)**
 J9: 265 (temperature tolerance); J11: 126 (odour perception)
 B84: 12 (Cowichan R.); B86 (Moricetown Falls); B93: 43 (eaten by seals); B101 (Babine R. slide)
 S148 (eaten by marine fishes); S225 (migration); S287 (cultural problems); S288 (efficiency of natural propagation); S356 (high dams); S381 (transplantation to Atlantic); S383 (weir for); S391 (fresh-water survival)
- SALMON, PACIFIC SPECIES (TECHNOLOGY)**
 C7: 505, C8: 265 (oil)
 J2: 431 (oil), 439, 469, 473; J3: 469; J4: 162; J5: 148, 244, 428 (oil); J6: 109 (oil), 119, 305; J7: 35, 51, 74, 137, 513, 522, 552; J8: 117; J10: 69
 B37: 135, B59: 390, B89: 320 (oil)
 S13; S81; S82; S162; S335; S375
- SALMON, PINK (*Oncorhynchus gorbuscha*) (BIOLOGY)**
 C1918-20: 20; C4: 455
 J2: 383; J3: 403; J4: 141, 233; J6: 217, 392; J7: 224; J8: 241; J9: 450; J10: 300; J11: 588, 933
 B14: 6; B31: 3; B66; B68: 82; B74; B90; B94: 6
 S129; S148; S202; S232; S248; S257; S263; S268; S339
- SALMON, RED** (see Salmon, sockeye)
- SALMON, SILVER** (see Salmon, coho)
- SALMON, SOCKEYE (*Oncorhynchus nerka*) (BIOLOGY)** (see also Kokanee)
 C1917-18: 32, 105; C1918-20: 12; C2: 151, 337; C3: 265; C4: 467; C5: 3, 37, 55; C8: 72, 345
 J2: 311; J3: 26, 399, 421, 450, 469; J4: 151, 184, 192; J5: 136, 293, 315; J6: 267, 483; J7: 88; J8: 82, 103, 178, 453; J10: 314; J11: 69, 339, 988
 B14: 3; B16; B26: 11; B27: 9; B32: 42; B50; B53; B55: 33; B56: 29; B68: 88; B94: 7
 S42; S67; S77; S84; S90; S91; S92; S107; S113; S115; S118; S122; S124; S127; S129; S134; S144; S145; S179; S195; S202; S219; S233; S237; S248; S295; S328; S342; S362

- SALMON, SPRING** (*Oncorhynchus tshawytscha*)
 C1915-16: 21; C1918-20: 7; C3: 265; C4: 455, 471
 J6: 158; J10: 548; J11: 57, 310
 B14: 5; B26: 3; B32: 41; B41; B65: 6; B68: 85; B84: 6; B94: 7
 S129; S202; S236; S263; S322
- SALMON-LOUSE** (*Lepeophtheirus*)
 C1917-18: 171
 J5: 172; J6: 24
- Salpa*, SALPS (*see* Thaliacea)
- SALT, PRODUCTION AND COMPOSITION**
 NS7
- SALT FISH, PRESERVATION AND SPOILAGE**
 J3: 70 (reddening), 439; J4: 136; J5: 249; 276, 287, 438 (discoloration), 411 (denaturation); J6: 1; 10, 17 (discoloration); J7: 70, 430; J8: 325 (denaturation); J9: 157; 377 (discoloration), 388 (water transfer); J11: 261 (discoloration); 901 (dun fungus on)
 B29; B47: 22; B59: 425 (changes in oil)
 NS4 (discoloration)
- SALT FISH, PROCESSING**
 J6: 380
 B6: 3 (lobster); B9: 10 (cod); B11: 24; B19: 9 (mackerel)
 S31 (strength of muscle)
 NS1: 24 (Atlantic cod); NS7: 13 (types of salt); NS9: 7 (Atlantic cod)
- Salvelinus alpinus* (*see* Char, Arctic)
- Salvelinus fontinalis* (*see* Char, speckled)
- Salvelinus malma* (*see* Char, Dolly Varden)
- SAMBRO LIGHTSHIP**
 S358
- SAMPLING BOTTLES** (*see* Apparatus)
- SAMPLING**
 J4: 19, J10: 238 (plankton)
 B76 (for infestation of whitefish with *Trienophorus*)
 S158 (plankton)
- SANBORN, JOSEPH RAYMOND**
 S102; S114
- SAND DAB** (*see* Dab, sand)
- SANDBISH**
 B68: 155
- SAND-LAUNCE, ATLANTIC**
 S234
 NR4: 15
- SAND-LAUNCE, PACIFIC**
 B68: 159
- SANITATION, OF BOATS AND PLANTS** (*see also* Sterilizing)
 B12: 12; B20: 11; B49: 2; B100
 NS9: 6
- SAPONIFICATION** (*see also* Oil, chemical reactions)
 J6: 103
- Sarda sarda*
 S226
- Sardinops caerulea* (*see* Pilchard)
- SARDINES (ATLANTIC WATERS)** (*see also* Herring, Atlantic)
 C1917-18: 181; C1918-20: 103
 J7: 62
 S346; S349 (oil)
- SARDINE, CALIFORNIA** (*see* Pilchard)
- Sarda lineolata*
 B68: 164
- SARGASSUM FISH**
 S203
- SARS, G. O.**
 C1911-14(2): 221
- SASKATCHEWAN** (*see also* individual localities)
 J2: 209 (*Chironomus hyperboreus*)
- SAUGER**
 B81: 3
- SAUNDERS, LESLIE GALE**
 C8: 243
 S69
- SAUNDERS, J. W.**
 S384
- SAURY, ATLANTIC**
 S234

SAURY, PACIFIC

B68: 123

SAWDUST (*see* Pollution)

SAWYER, WILLIAM REGINALD

C7: 73

S105

Saxidomus giganteus (*see* Clams, Pacific)

SCAD

B68: 161

SCAD, MACKEREL

S235

SCALES, FISH

C1914-15: 87 (hake), 95 (haddock), 103 (cod); C1915-16: 21 (spring salmon), 42 (coho); C1917-18: 109, C2: 151 (sockeye); C3: 431 (haddock); C4: 287 (cod), 471 (spring salmon); C5: 18, 75 (sockeye); C6: 282 (haddock); C8: 253 (Kamloops trout)

J4: 302 (brook trout); J5: 337 (*Prosopium*), 440 (Atlantic salmon); J6: 245 (rainbow trout); J7: 563 (amino acids in herring); J8: 245 (whitefish)

B1: 20 (plaice); B15: 8, B31: 4 (Pacific salmon); B21: 19 (Atlantic salmon); B25: 16 (haddock)

S157 (*Salmo*); S173 (Atlantic salmon); S263 (trout, etc.)

NR1: 18, NR13: 13 (Atlantic salmon); NR2: 28 (Atlantic capelin); NR6: 26 (haddock)

SCALLOPS

J11: 660

B75

S100

SCHIFFMAN, FRIEDEL S.

S284

SCHOOLING, (*see also* Migration)

J8: 241; J10: 523

SCHROEDER, W. C.

AF12d,e,f,

SCHULTZ, LEONARD PETER

C7: 319

Scomber scombrus (*see* Mackerel, Atlantic)

Scomberesox saurus

S234

Scorpaenichthys marmoratus

B68: 242

SCOTIAN SHELF

J7: 1; J10: 148, 155

SCOTT, DAVID MAXWELL

J10: 539; J11: 171, 894

SCOTT, FREDERICK HUGHES

C1901: 49

SCOTT, WILLIAM BEVERLEY

J11: 884

SCOTT, W. C. M.

C2: 129; C4: 137

SCULPIN, ARCTIC

J11: 248

SCULPIN, BLACK-FINNED

B68: 276

SCULPIN, BUFFALO

B68: 258

SCULPIN, CRESTED

B68: 246

SCULPIN, DARTER

B68: 263

SCULPIN, FILAMENTED

B68: 255

SCULPIN, FLUFFY

B68: 270

SCULPIN, GLOBE-HEADED

B68: 271

SCULPIN, GIANT MARBLED

B68: 242

SCULPIN, GREAT

B68: 259

SCULPIN, LESSER FILAMENTED

B68: 254

SCULPIN, LITTLE

S234

SCULPIN, LONG-FINNED
B68: 260

SCULPIN, LONGHORN
S234

SCULPIN, MANACLED
B68: 265

SCULPIN, MOSSY
B68: 272

SCULPIN, NORTHERN
B68: 253

SCULPIN, PADDED
B68: 249

SCULPIN, PLUMOSE
B68: 248

SCULPIN, PRICKLY (*Cottus asper*)
B55: 37; B56: 38

SCULPIN, PRICKLY (*Oligocottus rimensis*)
B68: 268

SCULPIN, RIBBED
B68: 262

SCULPIN, ROSY-LIPPED
B68: 274

SCULPIN, ROUGH-BACKED
B68: 252

SCULPIN, ROUGH-SPINED
B68: 261

SCULPIN, ROUND-NOSED
B68: 250

SCULPIN, SHARP-NOSED
B68: 273

SCULPIN, SMOOTH (*see* Cabezon)

SCULPIN, SOFT
B68: 279

SCULPIN, SPINY-HEADED
B68: 275

SCULPIN, STAGHORN
J11: 248

SCULPIN, TADPOLE
B68: 278

SCULPIN, TAYLOR'S
B68: 264

SCULPIN, TIDE-POOL
B68: 269

SCULPINS (*Myoxocephalus*)
C3: 443; C8: 275,
B73: 3
S17; S33; S34; S52; S234

SCYPHOZOA (*see* Jellyfish)

Scytalina cerdale
B68: 198

SEA LICE (*see* Salmon-louse)

SEA-BASS, WHITE
B68: 145

SEA-LION, STELLER'S
C1917-18: 5
J11: 267 (parasites)
B59: 419 (oil); B85: 1; B89: 357 (oil)

SEA-URCHINS (*Echinoidea*)
C1901: 49
S116

SEAL OIL
J7: 471
B59: 418; B89: 355

SEALS, FUR
C1902-05: 30
J10: 560 (NE Japan); J11: 267 (parasites)
B85
S160

SEALS, HAIR, HARP, HOODED and RINGED
C1902-05: 30
J6: 420; J8: 189; J10: 539; J11: 246, 267
B85: 7; B93; B94: 25
S329

SEA-PERCH, BLUE
B68: 149
S81; S82

SEA-PERCH, BROWN
B68: 148

SEA-PERCH, DUSKY
B68: 151

SEA-PERCH, WALL-EYED
B68: 153

SEA-PERCH, WHITE (*Phanerodon furcatus*)
B68: 152
S81 (creatine); S82 (arginase)

SEA-POACHER, BLACK-FINNED
B68: 286

SEA-POACHER, BLACK-TIPPED
B68: 289

SEA-POACHER, DEEP-PITTED
B68: 288

SEA-POACHER, FOUR-HORNED
B68: 282

SEA-POACHER, PIGMY
J6: 30
B68: 287

SEA-POACHER, SMOOTH
B68: 292

SEA-POACHER, STURGEON-LIKE
B68: 284

SEA-POACHER, WARTY
B68: 283

SEA-POACHER, WINDOW-TAILED
B68: 285

SEARCHER
B68: 156

SEA-ROBIN (*Prionotus carolinus*)
S159 (Passamaquoddy Bay)

SEAWEED (*see* Algae, marine)

Sebastes marinus (*see* Redfish)

Sebastes alutus
B68: 215

Sebastes caurinus (*see* Rockfish, copper)

Sebastes dalli
B68: 223

Sebastes diploproa
B68: 217

Sebastes elongatus
B68: 221

Sebastes flavidus
B68: 207

Sebastes inroniger (*see* Rockfish, black-throated)

Sebastes maliger (*see* Rockfish, orange-spotted)

Sebastes melanops (*see* Rockfish, black)

Sebastes miniatus
B68: 212

Sebastes mystinus
B68: 209

Sebastes nebulosus (*see* Rockfish, yellow-striped)

Sebastes nigrocinctus
B68: 229

Sebastes paucispinis (*see* Bocaccio)

Sebastes pinniger (*see* Rockfish, orange)

Sebastes proriger
B68: 214

Sebastes ruberrimus (*see* Snapper, red)

Sebastes rubrivinctus
J11: 335

Sebastes saxicola
B68: 216

Sebastes wilsoni (*see* Rockfish, Wilson's)

Sebastes zacentrus
B68: 222

Sebastolobus alascanus
B68: 230

SEDIMENTS
B88: 27 (Arctic)

SEDIMENTATION, OF STREAMS
J11: 362 (salmon survival)

Semotilus atromaculatus
S213

SEWAGE (*see* Pollution)

SEX RATIOS

C3: 489 (Canadian fishes); C5: 10, 39 (sockeye), 466 (sunfish); C8: 412 (haddock)
J3: 26 (sockeye), 131 (B.C. herring), 403 (pink salmon); J4: 194 (sockeye); J7: 231 (pink salmon); J9: 6 (Arctic char); J10: 418 (whitefish); J11: 1 (trout perch), 171 (yellowtail flounder), 988 (sockeye)
B25: 12 (haddock); B30: 10, B62: 29, B91: 20 (crabs); B64: 6 (smelt); B98: 12 (beluga)
S237 (kokanee and sockeye); S285, S327, S343 (B.C. herring); S90, S91, S92, S107, S113, S115, S118, S122, S134, S145, S179, S195, S219, S233, S328, S342, S362 (sockeye)
NR2: 49, NR17: 24 (Atlantic capelin); NR7: 12, NR16: 35 (lobster); NR15: 13 (Atlantic spiny dogfish)
NS15: 25 (lobster)

SEX REVERSAL

C7: 283 (oysters)
J5: 361 (oysters)
S93 (*Pandalus*)

SEXUAL MATURITY (see Maturity)

SHAD, AMERICAN

C1902-05: 95; C2: 161
B68: 76; B89: 346 (oil)
S155; S226; S382

SHAND, JAMES ARTHUR

S376

SHANN, E. W.

C3: 341

SHANNY

J11: 248

SHANNY, RADIATED

S226

SHARK, BASKING

B68: 54; B89: 341 (oil)
S226; S235

SHARK, BLUE

B68: 58; B89: 341 (oil)

SHARK, BROWN

B68: 56; B89: 341 (oil)

SHARK, HAMMERHEAD

S226

SHARK, MACKEREL

C1901: 55
B68: 53; B89: 341 (oil)
S159

SHARK, PACIFIC MUD

B68: 52; B89: 341 (oil)
S13 (pentose); S35

SHARK, SLEEPER

B68: 60; B89: 341 (oil)
S329

SHARK, SOUP-FIN

B68: 57; B89: 340 (oil)

SHARK, SPOTTED COW

B68: 51; B89: 341 (oil)

SHARK, THRESHER

B68: 55
S226

SHARKS (see also Dogfish; Elasmobranchs)

SHARKSUCKER, BLUE (*Remora remora*)

S203; S226

SHELL, CRUSTACEAN

J10: 521 (lobster), 583 (crab)

SHELL, MOLLUSCAN

J6: 209 (oyster)

SHELLFISH, TOXICITY

J7: 490
B75

SHELTER, IN STREAMS

J11: 362 (and salmon survival)

SHINER, GOLDEN

S213 (L. Jesse)

SHINER, REDSIDE (*Richardsonius balteatus*)

B55: 36 (food); B56: 35 (life)
S144

SHINER, YELLOW (*Cymologaster aggregatus*)

B68: 147

SHIPWORMS (MOLLUSCA)

C1917-18: 93; C4: 9, 19
J5: 8
B60: 70; B77: 12; B80
S19; S44; S45

- SHOCK (PHYSICAL)
J6: 252
- SHOEMAKER, CLARENCE RAYMOND
C3: 1; C5: 219
- SHRIMPS (INCLUDING PRAWNS)
C6: 79; C8: 237
J4: 88; J5: 344; J7: 363
AF10m (Atlantic)
S4; S64; S93; S387
- SHUSWAP L., B.C.
S197 (limnology)
- SHUTT, FRANK THOMAS
C1901: 15, 17
- Sicyogaster maeandricus*
B68: 334
- SIGURDSSON, G. JAKOB
J6: 45, 53
- SILICA, SILICIC ACID (*see also* Limnology;
Oceanography)
C7: 119, 127
S121 (growth of phytoplankton)
- SILVER
J7: 55
- SILVERSIDE (*Menidia notata*)
S234
- SIMPSON, WILLIAM WESLEY
C3: 437, 457
S34; S68; S119
- SINCLAIR, R. J.
C4: 227
- Siphostoma fuscum*
S234
- SIZE, OF FISH, ETC. (*see also* Growth rate;
Length-weight relationships; Weight of fish)
J1: 109 (bacillus), 213 (lobster); J2: 350
(lobster larvae), 359 (Kamloops trout),
379 (Atlantic salmon parr); J3: 108, 145
(B.C. herring), 403 (pink salmon); J5: 84
(starfish); J6: 222 (pink salmon), 228,
291 (lobster), 267 (sockeye), 281 (female
lobster), 428 (*Themisto*); J7: 186 (lake
trout); J8: 469 (ciscoes); J9: 169 (brook
trout); J10: 51 (Coregonidae), 307 (fresh-
water coho), 385 (lobster); J11: 171
yellowtail flounder), 904 (chars)
- B1: 10 (plaice); B2: 18 (lumpfish); B3: 9
(angler); B4: 7 (muttonfish); B32: 19,
21, 29 (trout); 37 (Dolly Varden); B47:
31 (herring); B54: 21 (cod); B56: 44
(whitefish); B79: 4 (speckled trout);
B82: 4 (coregonines); B90: 16 (chum and
pink salmon); B93: 6 (seals); B98: 5
(beluga)
- S35 (shark); S77 (sockeye); S85 (trout);
S116 (sea-urchin); S128, S183, S194,
S264 (pilchard); S142 (crab); S143
(*Rimicola*); S146 (herring); S161 (measur-
ing board); S248 (sockeye and pink sal-
mon); S249, S250 (rainbow trout); S262
(commercial clams); S270 (Ontario sal-
mon); S318 (speckled trout); S322
(composition of B.C. salmon); S336
(Greenland cod); S348 (beaked whales);
S352 (finback whales); S357 (L. Winnipeg
fishes); S285, S327, S343, S363 (B.C.
herring)
- NR6: 12 (haddock); NR7: 7, NR16: 18,
NR18: 14 (lobster); NR13: 15 (Atlantic
salmon); NR14: 69 (Atlantic cod), NR17:
12 (Atlantic capelin)
- NS2: 13, NS15: 25 (lobster)
- SKATE, ATLANTIC PRICKLY (*Raja scabrata*)
S234
- SKATE, BIG
B68: 63
S234
- SKATES, ATLANTIC
AF12c
- SKATE, BLACK
B68: 66
- SKATE, DEEP-SEA
B68: 67
- SKATE, LONG-NOSED
B68: 62
- SKATE, PACIFIC PRICKLY (*Raja stellulata*)
B68: 64
- SKATE, WINTER (*see* Skate, big)
- SKATES (PHYSIOLOGY AND TECHNOLOGY)
C1918-20: 125; C2: 129; C4: 117, 495,
501; C5: 475; C6: 315; C7: 1, 11, 17,
31, 439, 447, 477; C8: 139, 145, 207

- J1: 179, 239, 251, 261, 497
B89: 343 (oil)
S17; S18; S33; S51; S81; S82; S99;
S101; S154
- SKEENA R., B.C.
J8: 82 (limnology), 178 (climatology and
sockeye), 453 (sockeye)
B86 (salmon hazard); B93 (hair seals)
S287 (salmon)
- SKIL-FISH, GIANT
B68: 241
- SKIPJACK
B68: 164
- SLASTENENKO, EFIM PETROVICH
J11: 652
- SLEGGS, GEORGE FREDERICK
NR2
- SMEDLEY, ENID MARY
C8: 169
- SMELT, AMERICAN (*Osmerus mordax*)
J10: 539 (parasite); J11: 894
B70: 1; B94: 17
S41; S54; S234; S308
- SMELT, BLACK (*see* Black smelt)
- SMELT, LONG-FINNED (*Spirinchus dilatus*)
B64: 26; B68: 100
- SMELT, SILVER (*see* Smelt, surf)
- SMELT, SURF (*Hypomesus pretiosus*)
B64: 15; B68: 98
- SMELTS (*see also* Capelin; Eulachon)
- SMITH, GEORGE FRANCIS MAURICE
J5: 84; J6: 291
S149; S314
- SMITH, GERTRUDE MAY
S64; S72; S73; S74
- SMITH, LOUIS FALCONER
C7: 165
- SMITH, MORDEN WHITNEY
J1: 67; J5: 138; J7: 22; J8: 340, 383
S137; S138; S159; S166; S185; S198;
S206; S213; S229; S242; S278; S311;
S318; S321; S341; S384; S385
- SMITH, P. W. P.
S41
- SMITH, VERA ZORA (*see also* Lucas, V. Z.)
J9: 16
- SMOKING (FISH)
C1917-18: 175 (processing haddock), 179
(bacteriology of smoked haddock); C3:
469 (tensile strength of fish muscle);
C4: 27 (bactericidal action of smoke),
331 (tryptic hydrolysis of haddock muscle)
J3: 1 (preparing fillets); J6: 338 (deposition
of smoke on fish); J7: 70 (effect on
Clostridium)
B47: 21 (herring); B59: 425 (changes in oil)
S31 (tensile strength of haddock muscle);
S102 (decomposition); S135 (anemo-
meters)
- SNAILS (*see* Gastropoda)
- SNAPPER, RED (*Sebastes ruberrimus*)
J7: 35, 505; J8: 76
B68: 220; B89: 337 (oil)
S81; S82
- SNOW, JAMES MURRAY
J6: 403; J7: 561, 585, 594, 599; J8: 195, 309
- SOCKEYE (*see* Salmon, sockeye)
- SODIUM ACID PHOSPHATE
J5: 244
- SODIUM NITRATE
J6: 233
- SODIUM NITRITE
J5: 36, 148, 244, 265; J6: 63, 74, 233, 257,
414; J7: 101, 155, 221, 421, 461, 528,
536; J8: 195; J10: 69
B100: 34
S370
- SOLE (*Solea vulgaris*)
S41: 31 (bacteria)
- SOLE, BUTTER (*Isopsetta isolepis*)
B68: 322
- SOLE, C-O (*Pleuronichthys coenosus*)
B68: 320
- SOLE, CURL-FIN (*Pleuronichthys decurrens*)
J8: 375
B68: 319

- SOLE, DOVER (*Microstomus pacificus*)
J8: 375
B68: 327
- SOLE, FLAT-HEAD (*Hippoglossoides elassodon*)
B68: 315
- SOLE, GREY (*see* Flounder, witch)
- SOLE, LEMON—ATLANTIC (*Pseudopleuronectes dignabilis*)
NS14: 19
- SOLE, LEMON—PACIFIC (*Parophrys vetulus*)
J7: 35, 51, 74; J10: 459
B68: 321
- SOLE, REX (*Glyptocephalus zachirus*)
J8: 375
B68: 326
- SOLE, ROCK (*Lepidopsetta bilineata*)
B68: 317
S202
- SOLE, SAND (*Psettiichthys melanostictus*)
B68: 313
- SOLE, SLENDER (*Lyopsetta exilis*)
J8: 375
B68: 314
- SOLE, YELLOW-FIN (*Limanda aspera*)
B68: 323
- Solea vulgaris*
S41
- SOLUBLES, CONDENSED FISH AND WHALE
J7: 563
S310; S377
- Somniosus microcephalus* (*see* Shark, sleeper)
- SOOKE, B.C.
B31: 8, B40: 23, B74: 4 (tagging salmon)
- SOUND, REACTION TO
J11: 130 (in fishes)
- SOUTHCOTT, BURNETT ANNE
J10: 64
S310; S337
- SPANISH FLAG (ROCKFISH)
J11: 335
- SPARKS, M. IRVING
C2: 95; C4: 443
- SPAT (*see* Oysters)
- SPAWNING (*see* Redds; Reproduction)
- SPEARFISH (*Makaira albida*)
S226
- SPECIFIC GRAVITY
J4: 461 (herring); J8: 164 (salmon)
- SPENCE, C. MARION
C4: 257
- SPENCER, GEORGE JOHNSTON
B30
- SERM (FISH)
J8: 125
- Sphyrna argentea*
B68: 204
- Sphyrna sygaena*
S226
- Spirinchus dilatatus* (*see* Smelt, long-finned)
- SPLEEN (*see* Morphology)
- SPOILAGE (*see also* Trimethylamine)
C1918-20: 99 (Atlantic fish), 103 (canned sardines); C1: 279 (cold storage); C3: 347 (haddock); C4: 95 (clams), 227 (haddock, lobster, clam); C5: 431 (haddock); C7: 139, 425 (halibut), 147 (haddock, etc.); C8: 275 (Atlantic fishes), 301 (haddock)
J1: 95 (effect of freezing), 109 (effect of temperature on cell shape); J3: 77 (cod); J4: 63, 252, 355, 412 (cod), 229 (N.S. fishes), 267 (bacteria); 327 (halibut, blackcod), 367 (cod, halibut); J5: 32, 121, 197, 203 (cod), 148 (Pacific fishes), 187 (bacteria), 244 (chum salmon), 265 (halibut); J6: 45, 53, 359, 403, 441, 491 (cod), 74, 194, 233, 243, 257, 349, 351 (bacteria), 119 (halibut, salmon); J7: 17, 101, 567 (bacteria), 62, 128, 370, 378, 421, 430, 449, 461, 528, 536, 580 (cod), 70 (lobster, cod, hake, pollock), 155 (germicide ices), 221 (effect of bacteriostatic agents); J8: 111 (cod), 195 (bacteria); J9: 148 (cod); J10: 69 (halibut, lingcod, coho)

B8: 8 (lobster); B12: 10, B29, B49: 2 (halibut); B20: 11 (haddock); B100 (Atlantic fish)
 S89 (halibut); S96 (effect of autolysis); S102 (cod, halibut, etc.); S156 (control by ice glaze); S209; S325 (B.C. herring); S337 (control by antibiotics); S370, S375 (role and control of microorganisms); S379 (*Lactobacillus*); S388 (bacteria)
 NS1: 16 (dried codfish); NS4 ("pink" in salt codfish); NS12 (principles of food preservation); NS13 (canning)

SPONGES

S5

Sporendonema epizoum (see Mould)

SPOT, SILVER (*Blepsias cirrhosus*)
 B68: 245

SPRING SALMON (see Salmon, spring)

SPROAT RIVER, B.C.

J11: 310 (salmon migration)

SPRULES, WILLIAM MEMBERRY

J9: 1

Squalus acanthias (see Dogfish, Atlantic spiny)

Squalus suckleyi (see Dogfish, Pacific spiny)

SQUARE L., ALTA.

B95: 28 (pike control)

SQUAWFISH, COLUMBIA (*Ptychocheilus oregonense*)

J5: 295, 315; J8: 103

B55: 34; B56: 35

S144

SQUIDS

C1906-10: 24

S104; S245

SQUIRES, HUBERT JACOB

S372

ST. ANDREWS, N.B. (see Passamaquoddy Bay)

ST. CROIX R., N.B.

C1906-10: 265 (flora); C1914-15: 151 (oceanography); C1915-16: 109 (geology)

ST. JOHN R. AND HARBOUR, N.B.

J4: 424 (oceanography)

B51 (return of salmon)

ST. LAWRENCE, GULF OF

C1914-15: 81 (herring disease); C1918-20: 109 (fish from Cape Breton and Magdalen Is.)

J1: 269 (lobster tagging); J2: 41 (lobsters); J8: 332, J10: 146 (oceanography); J11: 198 (oceanography, fisheries), 239 (plankton), 245 (fishes)

B13: 4 (Arctic ice); B43 (lobster); B61: 12 (cod)

S184 (*Poronotus triacanthus*); S284 (sea sunfish)

STAFFORD, JOSEPH

C1901: 19; C1902-05: 31, 91; C1906-10: 37, 45, 69, 221

STARFISH (ASTEROIDEA)

C1: 455

J5: 84; J11: 601

B22: 14; B48: 1; B60: 44

S13; S149

STAR-SNOOT, GRAY

B68: 290

STAR-SNOOT, SPINY-CHEEKED

B68: 291

STATISTICAL METHODS

S128 (pilchards); S158 (plankton sampling); S167 (fiducial limits—Poisson distribution); S303 (uses in scientific research)

STATISTICS (FISHERY)

C2: 161 (shad); C3: 307 (lobster, alewife), 423 (haddock); C5: 453, C6: 169 (whitefish)

J2: 129 (herring); J5: 43 (theory); J8: 184 (sockeye), 264 (Great Slave L. fishes), 281 (theory); J9: 450 (pink and chum salmon); J10: 1 (herring); J11: 5 (lake trout), 284 (whitefish)

B2: 25 (lumpfish); B3: 8 (angler); B18: 6 (cod); B21: 7 (Atlantic salmon); B22: 11 (Malpeque Bay oysters); B23: 6 (Ontario markets); B33: 27, B43: 5 (lobster); B36: 6, B38 (pilchard); B54: 6 (lingcod); B61: 4 (Atlantic cod); B62: 24 (crab); B67 (B.C. herring); B69: 10 (haddock); B72: 11 (Atlantic halibut); B90: 7 (chum and pink salmon); B91: 12 (crab)

S128 (pilchard); S188 (Atlantic salmon); S230 (rainbow trout); S238 (clams); S240, S285, S363 (Pacific herring); S258

(Canadian fisheries); S286 (B.C. clams); S288, S381 (Pacific salmon); S292 (North Sea after 1914-18); S293, S294, S296 (need for); S302 (pompano—California); S318, S321 (speckled trout, P.E.I.); S319 (nylon nets, L. Winnipeg); S339 (pink salmon); S341 (trout, Crecy L., N.B.); S354 (Atlantic fisheries); S389 (Pacific groundfishes); S392 (Pacific dogfish); S393 (B.C. whaling); S394 (blackcod fishery)
 NR1: 11 (Atlantic salmon); NR11: 12 (lobster)
 NS2: 11 (lobster)

STEELHEAD (*see* Trout, rainbow)

Stenodus leucichthys mackenziei (*see* Inconnu)

STERILIZING (*see also* Sanitation, of boats and plants)
 J3: 100 (canned fish); J7: 55 (sea water)

STERN, JOSEPH AARON
 J10: 590

STEVENSON, JAMES CAMERON
 S285; S327; S343; S363; S378

STEVENSON, JOHN ALEXANDER
 J3: 188; J11: 660

STEWART, BEATRICE J.
 C8: 103

Stichaeus punctatus
 J11: 249
 B73: 9

STICKLEBACK, BROOK (*Eucalia inconstans*)
 S144

STICKLEBACK, FOUR-SPINED (*Apeltes quadracus*)
 S234

STICKLEBACK, NINE-SPINED (*Pungitius pungitius*)
 S234

STICKLEBACK, THREE-SPINED (*Gasterosteus aculeatus*)
 B68: 124
 S144; S234

STICKLEBACKS
 C1921: 149
 B55: 36 (food); B72: 42; B94: 22

STICKWATER (PRESS LIQUOR)
 C7: 165 (glue from)
 J3: 177 (nitrogen); J7: 513, 563 (amino acids)
 B35 (losses in effluent); B39 (effluent causing pollution)
 S310, S325 (vitamin B₁₂); S332 (utilization); S377 (stimulant for ruminant digestion)

Stizostedion canadense
 B81: 3

Stizostedion vitreum (*see* Walleye)

STOCK, V.
 C1911-14(1): 69

STOKES, JOHN WHITLEY
 B101

STONEFLIES
 C4: 157
 J11: 543
 S208

STORMS (*see* Weather)

STRAIT OF BELLE ISLE, NFLD.
 C3: 179 (Entomostraca), 331 (Entomostraca and other plankton); C7: 203 (fishes)
 J8: 134 (amphipods); J11: 198 (oceanography, fisheries), 239 (plankton), 245 (fishes), 431 (appendicularians)
 B18 (cod)

STRAIT OF GEORGIA, B.C.
 C2: 531 (Tintinnidae); C6: 65 (annelids)
 J11: 501 (deep waters), 14, 799, 856 (tidal effects)
 S80 (zooplankton); S112 (oceanography); S376 (internal waves in)

STRAIT OF JUAN DE FUCA (*see* Juan de Fuca)

STRATIFICATION OF WATER (*see* Currents; Limnology; Oceanography)

Strongylocentrotus drobachiensis (*see* Sea-urchin)

STURGEON, GREEN
 B68: 74

STURGEON, WHITE
 B68: 73

STURGEONS
 B7: 18 (insulin); B94: 5

SUCKER, COLUMBIA LARGE-SCALED (*Catostomus macrocheilus*)
J3: 20
B55: 33; B56: 32
S144

SUCKER, FINE-SCALED (*see* Sucker, longnose)

SUCKER, LONGNOSE (*Catostomus catostomus*)
B55: 33; B56: 32
S144

SUCKER, WHITE (*Catostomus commersoni*)
S140; S213; S281 (reactions to heat and light)

SUCKERS
B72: 41; B94: 18

SUCTORIA (PROTOZOA)
PF1g

SULLIVAN, CHARLOTTE MURDOCH
J10: 187; J11: 153
B77

SULPHA COMPOUNDS
J7: 221

SULPHUR-CONTAINING PROTEINS
J7: 51

SUNDERLAND, PETER ARNE
J5: 36, 148, 244

SUNFISH, OCEAN (*Mola mola*)
J11: 11
B68: 330
S284

SUNFISH, BANDED
J11: 529

L. SUPERIOR, ONT.
J9: 325 (temperature distribution)

SURVEYS (FISHERY)
C1917-18: 5 (sea-lion); C1918-20: 85, 93 (plankton)
J2: 95 (herring); J11: 198 (Gulf of St. Lawrence)
B42 (Kamloops lakes); B56 (Okanagan lakes); B72 (Northwest Territories); B88 (Eastern Arctic seas); B94 (Arctic freshwater fishes)

S62 (fishes of Hudson Bay system); S123 (B.C. fiords); S137, S198, S213 (L. Jesse, N.S.); S163 (Jones L., B.C.); S197 (Shuswap L., B.C.); S206 (N.S. lakes); S234 (Malpeque Bay); S238 (B.C. clams); S290 (fishes collected from the Wm. J. Stewart)

SURVIVAL (*see* Mortality)

SWAIN, LYLE ALLOWAY
J6: 113, 326; J7: 389
B89
S265

SWAN L., B.C.
S224 (food of ducks and coots)

SWIMMING (*see* Cruising speed; Current, reaction to)

SWORDFISH
B59: 404, B89: 343 (oil)

SYMBIOSIS
C6: 13

SYMONS, JESSIE L.
C1921: 1

Synchirus gilli
B68: 265

Syngathus griseo-lineatus
B68: 127

T

Tactostoma macropus
B68: 109

Taeniotoxa lateralis
B68: 149

TAGGING AND MARKING

C3: 265 (spring and sockeye salmon); C4: 453 (spring and coho salmon), 471 (spring salmon); C5: 80 (sockeye); C6: 263 (haddock); C8: 434 (Atlantic cod)
J1: 269 (lobster); J2: 311 (sockeye), 391 (Atlantic salmon); J3: 27 (sockeye); J4: 1, 96 (Atlantic salmon), 184 (sockeye); J5: 84 (starfish), 176, 258 (brook trout); J6: 164 (B.C. pilchard), 245 (steelhead and rainbow trout), 291 (lobsters), 311 (Atlantic salmon), 483 (sockeye); J7: 88 (sockeye), 416 (B.C. herring); J8: 67 (goldfish and coho), 374 (B.C. bottom fish), 453 (sockeye), 479 (lemon sole);

J10: 293 (coho), 377 (lobster), 459 (lemon sole); J11: 284 (whitefish), 351 (dogfish), 988 (sockeye)

B14, B31 (pink and chum salmon); B15, B40 (coho); B16 (sockeye); B21: 78, B50: 12, B99: 1 (Atlantic salmon); B26 (spring and coho salmon); B27 (spring salmon and other fish); B41 (spring salmon); B57: 32 (Margaree R. salmon); B62: 17 (Pacific crab); B64, B74 (pink salmon); B86: 7 (Moricetown Falls salmon); B91: 11 (crab); B96 (chum salmon); B98: 2 (beluga); B101 (Babine slide salmon)

S42 (sockeye); S129, S322 (Pacific salmon); S173 (salmon in Chamcook lakes, N.B.); S187, S192, S256, S280 (Atlantic salmon); S232 (spring and coho salmon); S268 (pink salmon); S308 (new tag for smelt); S171, S193, S221, S240, S247, S254, S260, S285, S327, S343, S363 (B.C. herring); S176, S196, S220, S239, S246, S253, S261 (pilchard)

NR8 (lobster); NR14: 9 (Atlantic cod)

TAIT, JOHN
S39

TAPEWORMS (*see* Cestoda)

Tarletonbeania crenularis
B68: 111

TARR, HUGH LEWIS AUBREY

J4: 327, 367; J5: 36, 148, 187, 211, 244, 265, 411; J6: 63, 74, 119, 233, 257, 303, 349; J7: 101, 137, 155, 221, 237, 513, 522, 552, 563, 608; J8: 74; J10: 64, 69
S209; S299; S310; S325; S332; S335; S337; S351; S360; S370; S373; S374; S375

TARTARIC ACID
J5: 122

TASTE, SENSE OF
J11: 107 (in fishes)

TATTERSALL, W. M.
C8: 181; J4: 281

TAUTOG (*Tautoga omilus*)
S159 (Passamaquoddy Bay)

Tautoglabrus adspersus (*see* Cunner)

TAYLOR, FREDERICK HENRY CARLYLE
J10: 560

TAYLOR, GEORGE W.
C1906-10: 187

TEDFORD L., N.S.

S206 (fishes); S229 (poisoning)

TEMPERATURE (*see also* Limnology; Oceanography; Temperature, reactions to)
C1: 413 (body temperature of fish)

TEMPERATURE, REACTIONS TO (*see also* Lethal limits)

C1901: 10 (survival without oxygen), 11 (rate of respiration); C1911-14(1): 73 (freezing mummichog); C2: 89 (lobster), 95 (marine animals); C4: 147 (angler—egg development), 422 (*Littorina*); C6: 176 (whitefish—spawning); C7: 45 (*Fundulus*—digestion), 447 (*Raja*—gastric motility); C8: 137 (*Raja* tissue), 145 (intestinal motility), 208 (*Raja* arteries), 253 (*Salmo* scales), 417 (haddock abundance), 434 (cod migration)

J2: 485 (lobster); J3: 169 (number of vertebrae), 421 (sockeye migration); J4: 287 (oyster), 323 (Atlantic salmon), 392 (herring); J5: 84 (starfish), 253 (oysters), 258, 461 (brook trout), 287 (mould), 485 (Atlantic salmon, brook trout); J6: 90 (salmon trout), 158 (coho, spring salmon), 217 (pink salmon), 449 (oysters), 476 (stream fishes); J7: 169 (goldfish), 490 (*Goniaulax*); J8: 134 (amphipods), 189 (seal oil), 241 (Pacific salmon); J9: 169 (brook trout), 265 (*Oncorhynchus*); J10: 187 (brook trout), 196 (B.C. fishes), 253 (phytoplankton); J11: 153 (in fish), 362 (salmon survival)

B1: 19 (American plaice); B5: 3 (lobster); B18: 4 (cod); B22: 15, B34: 11 (oyster); B99 (salmon)

S33 (muscles and nerve tissue); S40 (marine animals); S45 (wood-borers); S78 (digestion of ascidians); S117 (cultured fish); S190 (herring vertebra); S217 (fresh-water fish); S281 (common sucker)

NR2: 19 (Atlantic capelin); NR14: 98 (Atlantic cod)

TEMPLEMAN, WILFRED

C8: 421

J1: 213, 269; J2: 41, 223, 349, 485; J3: 339, 343; J5: 71; J6: 228, 281; J11: 11, 351, B43

S164

NR7; NR8; NR10; NR11; NR15; NR16; NR17; NR18

NS15

- TENCH, EUROPEAN (*Tinca tinca*)
S144
- TENSILE STRENGTH (OF FISH MUSCLE)
C3: 467
S31
- Teredo navalis* (see Shipworms)
- TERRITORIALISM
J8: 241
- TESTER, ALBERT LEWIS
J3: 108, 145; J4: 461, 478; J7: 403
B47; B63; B65; B67
S146; S171; S190; S193; S221; S240;
S244; S247; S254; S260; S285
- Tetranarce californica*
B68: 70
- Thaleichthys pacificus* (see Eulachon)
- THALIACEA (SALPS)
C1918-20: 93
S203; S226; S235 (Nova Scotia waters)
- THANATOLOGY
S40
- Themisto* (see Amphipoda)
- Theragra chalcogramma*
B68: 130
- THIAMINASE
J7: 94; J11: 529
- THOMPSON, ANDREW
S306
- THOMPSON, CHARLES
B92
- THOMPSON, HAROLD
NR1; NR6; NR14
NS2
- THOMPSON, HELEN G.
J5: 1
- THREAD-FISH
B68: 122
- Thunnus alalunga* (see Albacore)
- Thunnus thynnus* (see Tuna, bluefin)
- Thymallus signifer* (see Grayling)
- THYROID GLAND IN FISH
C2: 129; C4: 115
S223
- TIBBO, SIMEON NOEL
NR16
- TIDAL EFFECTS (see Currents; Flow)
- Tinca tinca*
S144
- TINDALL, W. B.
C1918-20: 123
- TOMCOD, ATLANTIC
S234
NS8: 22
- TOMCOD, PACIFIC
B68: 131
- TOMLINSON, R. V.
J8: 117
- TOXICITY (see Poisons, general)
- Trachypterus rex-salmonorum*
B68: 139
- TRANSGRESSIONS (see Currents)
- TRANSPLANTATION (see also Culture; Hatcheries)
C1914-15: 119 (lobster)
J4: 141 (pink salmon)
B34: 23 (Japanese oyster)
S131 (brown trout); S132 (Japanese oyster);
S141 (pond culture); S381 (Pacific salmon); S382 (shad, striped bass)
- TRANSPORT, REFRIGERATED
S323
- TREADWELL, AARON LOUIS
C7: 277
J3: 348
AF9b
- TREMATODA
C1902-05: 91
J2: 335; J11: 267, 673, 954, 963

- Triacnophorus* (TAPEWORM)
C7: 341, 377
J6: 334; J7: 186; J8: 469; J11: 1
B72: 39; B76; B95
S180
- TRIAMINEOXIDEASE
J5: 187; J6: 368
- Trichodon trichodon*
B68: 155
- TRIGGERFISH (*Balistes capriscus*)
S226
- Triglops beani*
B68: 262
- Triglops pingeli*
B73: 2
- TRIMETHYLAMINE (*see also* Spoilage)
J3: 77; J4: 63, 229, 252, 267, 327, 355, 367;
J5: 121, 148, 187, 200, 203, 211; J6: 1,
53, 194, 243, 303, 351 (test), 359, 368,
403, 491; J7: 17, 128, 421, 449, 461, 528,
536, 561, 567, 576 (test), 580; J8: 111,
195, 309, 314; J9: 143
S209
- TRIMETHYLAMINE OXIDE (*see also* Trimethyl-
amine)
J8: 309 (test), 314 (content)
- TROUT, BROOK (*see* Char, speckled)
- TROUT, BROWN
J3: 169; J5: 448
B32: 36; B68: 90; B84: 21
S131; S141; S144; S157; S263
NR9
NS6: 8
- TROUT, CUT-THROAT
C6: 391
J3: 169; J5: 448; J8: 125; J10: 548; J11: 550
B32: 28; B68: 89; B84: 20
S85; S144; S148; S157; S252; S263
- TROUT, EASTERN BROOK (*see* Char, speckled)
- TROUT, GREAT LAKE (*see* Trout, lake)
- TROUT, HYBRID
B32: 35
- TROUT, KAMLOOPS (*see* Trout, rainbow)
- TROUT, LAKE (*Cristivomer namaycush*)
J7: 176; J8: 207; J11: 5, 904
B32: 39; B72: 37, 57, 78
S144
- TROUT, RAINBOW (*Salmo gairdneri*)
C6: 391; C8: 253
J2: 359; J3: 23, 169, 469; J4: 69; J5: 136,
448; J6: 245; J8: 117, 125; J10: 548
B32: 13; B42: 3; B56: 1, 29; B68: 92;
B72: 90; B84: 14; B94: 7
S85; S144; S157; S163; S214; S215; S230;
S249; S250; S251; S263
NR9
NS6: 10
- TROUT, ROCK (*Hexagrammus superciliosus*)
S81 (creatine)
- TROUT, SPECKLED (*see* Char, speckled)
- TROUT, STEELHEAD (*see* Trout, rainbow)
- TROUT-PERCH (*Percopsis omiscomaycus*)
J11: 1
B94: 20
- TRUSCOTT, BERYL
J11: 355
- TUBE-SNOUT
B68: 126
- TUBE-WORM (*see* Polychaeta)
- TULLIBERS (*see* Ciscos)
- TULLY, JOHN PATRICK
J2: 477; J3: 43, 93; J4: 478; J5: 398; J8:
378; J11: 853
B83
S172; S174; S177; S186; S189; S191;
S241; S344; S345
- TUNA, BLUEFIN
B89: 343 (oil)
S234
- TUNAS (TECHNOLOGY)
J3: 102 (canned paste); J4: 363 (histidine)
- TUNICATA (*see* Appendicularians; Ascidians;
Thaliacea)
- TURBIDITY, REACTION TO
J11: 362 (salmon survival)

TURTLES, MARINE
S372

TYROSINE
J4: 334; J6: 53

U

UDVARDY, MIKLOS DEZSO FERENC
J11: 431

Ulvaria subbifurcata
S226

UNGAVA BAY
J9: 65 (*Calanus* expedition), 83 (fishes);
J11: 98 (list of Stations), 507 (Polychaeta),
709 (Amphipoda)
S329 (economic problems)

UNSAPONIFIABLES (*see also* Oil, other compo-
nents)
J6: 326; J7: 389
B37: 45; B59: 83; B89: 84

Upogebia pugettensis
S169

UREA
C1918-20: 125, 134; C1: 401
J1: 497
S23; S119

Urophycus chuss (*see* Hake, squirrel)

Urophycis regius
NS8: 27

Urophycis tenuis (*see* Hake)

V

VACHON, ALEXANDRE
C1917-18: 295

VAISEY, EDGAR BYRON
J11: 901

VAN HORNE, ADALINE
C1911-14(1): 47

VAN HORNE, MARY
C1911-14(1): 47

VANCOUVER ISLAND, B. C. (*see also* separate
localities)

C1914-15: 119 (lobster); C1: 143 (Bryozoa),
219 (Hydromedusae); C3: 47 (Bryozoa);
C6: 23 (Cumacea), 65 (annelids), 397
(Ostracoda); C7: 221 (Cestoda); C8: 243
(freshwater amphipods)

J7: 403 (herring); J9: 16 (Ostracoda)
B14, B15, B26, B27, B31, B40, B41, B66
(tagging salmon); B17: 3 (waterfowl-
herring); B30 (crab); B39: 4 (pilchard
pollution); B47: 15 (location of herring);
B65: 4 (food of salmon); B84 (Cowichan
R. game fish)

S11 (new heliozoon); S12, S49 (nudi-
branchiate Mollusca); S160 (fur seal
food); S322 (troll-caught salmon); S285,
S327, S343 (herring)

VANDENHEUVEL, FRANZ AIMÉ
J9: 129
S330; S331; S349; S350

VARIATION, MORPHOLOGICAL (*see also* Size)
J6: 30, 217, 245, 392; J7: 403; J8: 347;
J9: 169

VAUGHAN, ELIZABETH
S257

VELAR APPARATUS (*see* Morphology)

Venus mercenaria (*see* Quahaug)

VERTEBRAE (*see also* Age determination)
J3: 114 (herring), 169 (*Salmo*), 417 (capelin);
J5: 11, 347, 474 (herring), 105 (cod); J7:
403 (herring)
S120, S183 (pilchard); S146, S190 (herring)
NR14: 63 (Atlantic cod); NR17: 109 (At-
lantic capelin)

VIABILITY (OF EGGS AND SPERM)
J8: 125 .

VIPERFISH (*Chauliodus sloanei*)
S226

VIPERFISH, FANGED (*Chauliodus macouni*)
J11: 502
B68: 107

VISCERA
J7: 563 (amino acids); J8: 111 (as feed stuff)
S310 (vitamin B₁₂)

VISCERA OIL

- J4: 396 (halibut), 405 (Pacific cod), 472 (rockfish, blackcod, lingcod); J5: 428 (Pacific fishes)
B25: 27 (haddock); B37: 71 (B.C. fishes); B59: 222, B89: 198 (general)

VITAMINS A AND D

- C6: 355 (pilchard oil); C7: 405 (lingcod liver oil); C8: 265 (salmon liver oil)
J2: 431 (canned salmon oil); J4: 174 (absorbed from oils by soaps), 312 (dogfish liver oil), 396 (halibut liver and intestinal oils), 405 (liver and intestinal oils of gray cod), 472 (liver and intestinal oils of red rockfish, blackcod and lingcod); J5: 428 (pilchard, herring, salmon and tullibee oil); J6: 103 (free and esterified), 113 (adsorption from liver oils); J11: 357 (in cod liver oil)
B37: 51, B59: 53, B89: 46 (oils); B46: 3 (pilchard oil)
S55, S86 (dogfish liver oil); S97 (pilchard oil); S162 (canned salmon); S265 (test)
NR15 (dogfish liver oil)
NS3: 20 (cod liver oil); NS5: 6 (dogfish liver oil)

VITAMINS, B-GROUP

- J7: 74 (fish flesh); J9: 129 (cod liver and others), 164 (invertebrates); J10: 64 (herring meals); J11: 355 (B_{12} in cod liver), 529 (diet destructive to B_{12}), S310 (fish products); S325 (stickwater); S335 (salmon kidney, herring meal); S373 (herring meal supplement)

VLADYKOV, VADIM DMITROVICH

- C8: 13, 409
J11: 535, 904
S154; S155

W

WAILES, GEORGE HERBERT

- C2: 507, 519, 531; C7: 213, 245
J1: 477
PF1a,b,c,d; PF1e; PF1f,g
S28; S76; S88; S98

WALDICHUK, MICHAEL

- J11: 501

WALKER, EDMUND MURTON

- C1911-14(2): 53
S200

WALKER, S. J.

- C6: 472

WALLACE, N. A.

- S1

WALLEYE, YELLOW (*Stizostedion vitreum*)

- C3: 235
B72: 41, 79; B81: 1; B94: 20

WALLIS, JOHN BRAITHWAITE

- C4: 221

WALRUS

- B85: 3

WARDLE, ROBERT ARNOLD

- C7: 221, 377; C8: 77
B45

WARREN ARTHUR EMERSON

- J2: 89

WASHING (HERRIED LOBSTERS)

- NR10; NR11: 29
NS15:35

WASHINGTON, STATE OF, U.S.A.

- B66, B74 (pink salmon)

WASKESIU L., SASK.

- J7: 190 (pike)

WASTE (*see* Fishery products; Stickwater)

WATER ANALYSES (*see* Limnology; Oceanography; Pollution)

WATER CONTENT

- NS1: 31 (of dried codfish)

WATER HEIGHT (*see* Flow)

WATSON, DENNIS WALLACE

- J4: 219, 252, 267

WATSON, EDMUND EVELYN

- J2: 141

WAVES, INTERNAL

- S376

WEATHER

- C1918-20: 29
J1: 121, 227; J2: 383; J3: 343; J5: 401;
J6: 476; J7: 447; J8: 1, 178, 332
B51: 15; B57: 29
S175; S306; S346; S358

WEIGHT OF FISH (*see also* Length-weight relationship; Size)

B27: 1, B41: 8 (spring salmon); B31: 5 (pink salmon), 10 (chum salmon); B40: 11 (coho salmon); B81: 1 (L. Manitoba salmon); B90: 16 (chum and pink salmon); B98: 5 (beluga); S54 (squirrel hake, pollack, winter flounder, smelt)
S77, S90, S91, S92, S107, S113, S115, S118, S122, S141, S143, S179, S195, S219, S233, S328 (sockeye); S214 (loss at spawning time); S248 (sockeye and pink salmon); S250, S251 (rainbow trout); S285, S327, S343, S363 (B.C. herring); S318 (speckled trout)
NR15: 27 (Atlantic spiny dogfish); NR17: 124 (Atlantic capelin)

WEYMOUTH, FRANK WALTER

J1: 191
S142

WHALE, BEAKED (Atlantic) (*Mesoplodon densirostris*)
S235

WHALE, BEAKED (Pacific) (*Berardius bairdi*)
S318

WHALE, FINBACK (*Balaenoptera physalus*)
S352

WHALE, WHITE (*see* Beluga)

WHALES (*see also* individual species)

C3: 501 (barnacles)
J8: 275; J10: 320; J11: 319 (whale lice)
B59: 413 (oil); B89: 347 (oil)
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WHITEAVES' CATALOGUE

C1917-18: 229

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J11: 954

L. WINNIPEG, MAN.

C1: 419 (fishes); C7: 177 (mayflies); C5: 382
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worms)

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APPENDIX

(Reprinted in large part from the 1953 Consolidated
Annual Catalogue of Canadian Government Publications)

LIST OF PUBLICATIONS AND TITLES 1901-1954

DEALING WITH WORK OF THE
FISHERIES RESEARCH BOARD OF CANADA
(Formerly the Biological Board of Canada)

1. CONTRIBUTIONS

(a) CONTRIBUTIONS TO CANADIAN BIOLOGY

1901. pp. 1-62, 1901. 45¢.

1. Marine biological station of Canada. Introductory notes on its foundation, aims and work. By E. E. Prince, pp. 1-8.
2. The effects of polluted waters on fish life. A preliminary report. By A. P. Knight, pp. 9-18.
3. The clam fishery of Passamaquoddy bay. By J. Stafford, pp. 19-40.
4. Report on the flora of St. Andrews, N.B. By James Fowler, pp. 41-48.
5. Food of the sea urchin (*Strongylocentrotus dröbachiensis*). By F. H. Scott, pp. 49-54.
6. The paired fins of the mackerel shark. By E. E. Prince and A. H. MacKay, pp. 55-58.
7. Report on the sardine industry in relation to the Canadian herring fisheries. By B. Arthur Bensley, pp. 59-62.

1902-05. pp. 1-128, 1907. (*Out of print.*)

1. The plankton of eastern Nova Scotia waters. An account of floating organisms upon which young food-fishes mainly subsist. By R. Ramsay Wright, pp. 1-19.
2. The effects of dynamite explosions on fish life. A preliminary report. By A. P. Knight, pp. 21-30.
3. On the fauna of the Atlantic coast of Canada. An introductory report. By J. Stafford, pp. 31-36.
4. A further report upon the effects of sawdust on fish life. By A. P. Knight, pp. 37-54.
5. The Diatomaceae of Canso harbour, Nova Scotia. A provisional list. By A. H. MacKay, pp. 55-58.
6. Report on the flora of Canso, Nova Scotia. By James Fowler, pp. 59-70.

7. The seaweeds of Canso. Being a contribution to the study of eastern Nova Scotia algae. By C. B. Robinson, pp. 71-74.
 8. Report on the marine Polyzoa of Canso, N.S. By George A. Cornish, pp. 75-80.
 9. Notes on the fishes of Canso. By George A. Cornish, pp. 81-90.
 10. Preliminary report on the Trematodes of Canadian marine fishes. By J. Stafford, pp. 91-94.
 11. The eggs and early life-history of the herring, gaspereau, shad and other clupeoids. By Edward E. Prince, pp. 95-110.
 12. Sawdust and fish life. Final report. By A. P. Knight, pp. 111-120.
 13. Professor Macallum on the chemistry of Medusae. A condensed résumé of results. By Edward E. Prince, pp. 121-128.
- 1906-10. pp. 1-305, 1912. \$2.25.
1. Report on the Atlantic Biological Station of Canada, St. Andrews, N.B., for 1908. By D. P. Penhallow, pp. 1-21.
 2. Fishery bait experiments. A preliminary report upon the comparative merits of different kinds of bait used in cod fishing along Gaspé peninsula. By A. P. Knight, pp. 23-32.
 3. Notes on the Actiniae occurring in the neighbourhood of the Biological Station, St. Andrews, N.B. By J. Playfair McMurrich, pp. 33-35.
 4. On the fauna of the Atlantic coast of Canada. Second report.—Malpeque, 1903-1904. By J. Stafford, pp. 37-44.
 5. On the fauna of the Atlantic coast of Canada. Third report.—Gaspé, 1905-1906. By J. Stafford, pp. 45-68.
 6. On the fauna of the Atlantic coast of Canada. Fourth report. By J. Stafford, pp. 69-78.
 7. Notes on fishes of Tignish, Prince Edward Island. By George A. Cornish, pp. 79-81.
 8. On a collection of Crustacea made at St. Andrews, N.B. By D. L. MacDonald, pp. 83-84.
 9. Parasitic copepods from Nanaimo, British Columbia, including eight species new to science. By Charles Branch Wilson, pp. 85-101.
 10. Holosomatous ascidians from the coast of western Canada. By A. G. Huntsman, pp. 103-185.
 11. Preliminary list of one hundred and twenty-nine species of British Columbia Decapod Crustaceans. By George W. Taylor, pp. 187-214.
 12. A new genus and species of Cottoid fish from Departure bay, Vancouver island. By Charles H. Gilbert, pp. 215-216.
 13. Oyster culture and clam fishing, Prince Edward Island. By E. W. MacBride, pp. 217-220.

14. On the recognition of bivalve larvae in plankton collections. By J. Stafford, pp. 221-242.
15. Some recent diatoms, freshwater and marine, from the vicinity of the Biological Station, St. Andrews, N.B., August 20-30, 1909. By L. W. Bailey, pp. 243-264.
16. Notes on the flora of the St. Croix river valley and Passamaquoddy region, New Brunswick. By A. B. Klugh, pp. 265-276.
17. Contributions to the physiology of the American lobster. The physiology of the intestine. By F. R. Miller, pp. 277-280.
18. The temperatures and densities and allied subjects of Passamaquoddy bay and its environs. Their bearing on the oyster industry. By G. G. Copeland, pp. 281-294.
19. The geological environment of the British Columbia Biological Station at Departure bay, Vancouver island. By E. M. Burwash, pp. 295-305.

1911-14. pp. 1-75, 1-222, 1915. \$2.20.

Fasc. I. Marine biology. pp. 1-75. 55¢.

1. The plankton in St. Andrews bay. By A. Willey, pp. 1-9.
2. The plankton diatoms of the bay of Fundy. By L. W. Bailey, pp. 11-23.
3. Studies on the Sporozoa of the fishes of the St. Andrews region. By J. W. Mavor, pp. 25-38.
4. A new Caprellid from the bay of Fundy. By A. G. Huntsman, pp. 39-42.
5. Preliminary notes on the Mollusca of St. Andrews and vicinity, New Brunswick. By John D. Detweiler, pp. 43-46.
6. A list of fleshy fungi collected at St. Andrews, New Brunswick. By Adaline Van Horne and Mary Van Horne, pp. 47-50.
7. The iodine content of the marine flora and fauna in the neighbourhood of Nanaimo, Vancouver island, B.C. By A. T. Cameron, pp. 51-68.
8. On some of the parasitic copepods of the bay of Fundy fish. By V. Stock, pp. 69-71.
9. Some experiments on the freezing and thawing of live fish. By W. H. Martin, pp. 73-75.

Fasc. II. Fresh water fish and lake biology. pp. 1-222. \$1.65.

1. The fishes of Georgian bay. By B. A. Bensley, pp. 1-51.
2. Notes on the Odonata of the vicinity of Go Home bay, Georgian bay, Ontario. By E. M. Walker, pp. 53-94.
3. The Mollusca of Georgian bay. By A. D. Robertson, pp. 95-111.
4. Rearing experiments and ecology of Georgian bay Ephemeridae. By W. A. Clemens, pp. 113-128.

5. Life-histories of Georgian bay Ephemeridae of the genus *Heptagenia*. By W. A. Clemens, pp. 131-143.
 6. The fresh-water Malacostraca of Ontario. By A. G. Huntsman, pp. 145-163.
 7. Notes on the Hirudinea of Georgian bay. By C. G. S. Ryerson, pp. 165-175.
 8. Contributions to the life history of *Proteocephalus ambloplitis* Leidy. A parasite of the black bass. By A. R. Cooper, pp. 177-194.
 9. Bryozoa of the Georgian bay region. By H. T. White, pp. 195-199.
 10. Preliminary report on the plants of Georgian bay. A contribution to the biology of the Georgian bay waters. By W. T. MacClement, pp. 201-211.
 11. List of Georgian bay fleshy fungi and myxomycetes. By T. H. Bissonnette, pp. 213-218.
 12. Notes on the aquatic plants of Georgian bay. By A. B. Klugh, pp. 219-220.
 13. Entomostraca of Georgian bay. By G. O. Sars, pp. 221-222.
- 1914-15. pp. 1-173, 1916. \$1.25.
1. Investigation into the Pacific halibut fisheries, British Columbia. By Arthur Willey, pp. 1-18.
 2. Notes on the egg and larval stages of the halibut. By Edward E. Prince, pp. 19-23.
 3. The commercial value of the kelp-beds of the Canadian Pacific coast—A preliminary report and survey of the beds. By A. T. Cameron, pp. 25-39.
 4. Lobster sanctuaries and matching ponds: An investigation of the Long beach lobster pond, Digby county, Nova Scotia, in 1914. By A. P. Knight, pp. 41-54.
 5. First report on the "barren oyster bottoms" investigation, Richmond bay, P.E.I. By A. D. Robertson, pp. 55-71.
 6. A supposed disease of quahaugs from New Brunswick. By Philip Cox, pp. 73-79.
 7. Investigation of a disease of the herring (*Clupea harengus*) in the gulf of St. Lawrence, 1914. By Philip Cox, pp. 81-85.
 8. The life-history of the hake (*Urophycis chuss* Gill) as determined from its scales. By E. Horne Craigie, pp. 87-94.
 9. Investigation of the haddock fishery, with special reference to the growth and maturity of the haddock (*Melanogrammus aeglefinus*). By Dorothy Duff, pp. 95-102.
 10. Report on the life history of the cod as determined from the scales and other data. By R. P. Wodehouse, pp. 103-113.
 11. Are migrating eels deterred by a range of lights—Report on experimental tests. By Philip Cox, pp. 115-118.

12. Possible lobster planting areas on the east coast of Vancouver island, B.C. By C. McLean Fraser, pp. 119-132.
 13. Variations in density and temperature in the coastal waters of British Columbia—Preliminary notes. By C. McLean Fraser and A. T. Cameron, pp. 133-143.
 14. An investigation of the bays of the southern coast of New Brunswick with a view to their use for oyster culture. By J. W. Mavor, E. Horne Craigie, and J. D. Detweiler, pp. 145-149.
 15. Hydrographic investigations in the St. Croix river and Passamaquoddy bay in 1914. By E. Horne Craigie, pp. 151-161.
 16. A hydrographic section of the bay of Fundy in 1914. By E. Horne Craigie, pp. 163-167.
 17. The water and iodine contents of some Pacific coast kelps. By A. T. Cameron, pp. 169-173.
- 1915-16** (English and French editions). pp. 1-112, 1917. 90¢.
1. The winter plankton in the neighbourhood of St. Andrews, 1914-15. By J. Playfair McMurrich, pp. 1-9. 15¢.
 2. Diatoms and lobster rearing. By W. T. MacClement, pp. 11-20. 15¢.
 3. On the scales of the spring salmon. By C. McLean Fraser, pp. 21-38. 20¢.
 4. On the life-history of the coho. By C. McLean Fraser, pp. 39-52. 20¢.
 5. An investigation of oyster propagation in Richmond bay, P.E.I., during 1915. By Julius Nelson, pp. 53-78. 25¢.
 6. The marine Algae of the Passamaquoddy region, New Brunswick. By A. B. Klugh, pp. 79-85. 15¢.
 7. On serially striped haddock in New Brunswick. By Edward E. Prince, pp. 86-91. 15¢.
 8. Notes on the phyto-plankton of the bay of Fundy and Passamaquoddy bay. By L. W. Bailey, pp. 93-107. 20¢.
 9. The geological features of the St. Croix river and Passamaquoddy bay. By L. W. Bailey, pp. 109-112. 10¢.
- 1917-18.** pp. 1-369, 1918. \$2.60.
1. British Columbia sea-lion investigation. Special Commission's preliminary and main reports, pp. 5-52. 30¢.
 2. Lobster investigations at Long Beach pond, N.S. By A. P. Knight, pp. 53-71. 20¢.
 3. The pearly fresh-water musels of Ontario. By John D. Detweiler, pp. 75-91. 25¢.
 4. Notes on the habits and distribution of *Teredo navalis* on the Atlantic coast of Canada. By E. M. Kindle, pp. 93-103. 15¢.

5. Rearing sockeye salmon in fresh water. By C. McLean Fraser, pp. 105-109. 10¢.
 6. On the age and growth of the pollock in the bay of Fundy. By James W. Mavor, pp. 111-125. 20¢.
 7. Further hydrographic investigations in the bay of Fundy. By E. Horne Craigie and W. H. Chase, pp. 127-148. 25¢.
 8. Examination of affected salmon, Miramichi hatchery, New Brunswick. By F. C. Harrison, pp. 149-168. 20¢.
 9. Report on affected salmon in the Miramichi river, New Brunswick. By A. G. Huntsman, pp. 169-173. 10¢.
 10. The smoking of "haddocks" for Canadian markets—an investigation conducted at the Marine Biological Station at St. Andrews, N.B. By Olive Gair Patterson, pp. 175-178. 10¢.
 11. Some observations on haddocks and "finnan haddies" relating to the bacteriology of cured fish. By F. C. Harrison, pp. 179-180. 10¢.
 12. The bacteriology of swelled canned sardines. By Wilfred Sadler, pp. 181-215. 30¢.
 13. Bacterial destruction of copepods occurring in marine plankton. By Wilfred Sadler, pp. 217-228. 15¢.
 14. Bathymetric check list of the marine invertebrates of eastern Canada with an index to Whiteaves' catalogue. By E. M. Kindle and E. J. Whittaker, pp. 229-294.
 15. Hydrography in Passamaquoddy bay and vicinity, New Brunswick. By Alexander Vachon, pp. 295-328. 35¢.
 16. Hydroids of eastern Canada. By C. McLean Fraser, pp. 329-369.
- 1918-20. pp. 1-188, 1921. \$1.45.
1. Further studies on the growth rate in Pacific salmon. By C. McLean Fraser, pp. 7-27. 25¢.
 2. Some apparent effects of severe weather on the marine organisms in the vicinity of Departure bay, B.C. By C. McLean Fraser, pp. 29-33. 10¢.
 3. Temperature and specific gravity variations in the surface waters of Departure bay, B.C. By C. McLean Fraser, pp. 35-48. 20¢.
 4. Plankton diatoms, their distribution and bathymetric range in St. Andrews waters. By Clara W. Fritz, pp. 49-62. 20¢.
 5. Experimental cultures of diatoms occurring near St. Andrews, N.B. By Clara W. Fritz, pp. 63-68. 10¢.
 6. Contribution to the biology of the muttonfish *Zoarces anguillaris*. By Wilbert A. Clemens and Lucy Smith Clemens, pp. 69-83. 20¢.
 7. Eastern Canadian plankton.—The distribution of the Tomopteridae obtained during the Canadian Fisheries Expedition, 1914-1915. By A. G. Huntsman, pp. 85-91. 15¢.

8. Eastern Canadian plankton.—The distribution of floating tunicates (Thaliacea) obtained during the Canadian Fisheries Expedition, 1914-1915. By A. G. Huntsman, pp. 93-97. 10¢.
 9. An investigation into the rate of putrefaction in the commoner food fish caught in and around Passamaquoddy bay, N.B. By Louis Gross, pp. 99-102. 10¢.
 10. Canned sardines.—The cause of "swells" or "blown cans". By Wilfred Sadler, pp. 103-108. 10¢.
 11. List of fishes collected in 1917 off the Cape Breton coast and the Magdalen islands. By Philip Cox, pp. 109-114. 10¢.
 12. The diatoms of Canada. By L. W. Bailey and A. H. Mackay, pp. 115-124. 15¢.
 13. The utilization of dogfish and selachian fishes of eastern Canada (including Report on analyses of canned grayfish (dogfish) by Emil J. Baumann). By James W. Mavor, pp. 125-135. 15¢.
 14. Key to the hydroids of eastern Canada. By C. McLean Fraser, pp. 137-180.
 15. A new genus and three new species of algae from the Miramichi river, New Brunswick. By A. Brooker Klugh, pp. 181-183. 10¢.
 16. The histology of the flexor tendon in the crushing claw of the lobster. By A. P. Knight, pp. 185-188. 10¢.
1921. pp. 1-183. \$1.40.
- Nos. 1 and 2. pp. 1-48, 1921. 45¢.
1. Some bacterial organisms occurring in the clam (*Mya arenaria*) which may produce "blackening" in tins. By Jennie L. Symons, pp. 1-14.
 2. A study of the sea mussel (*Mytilus edulis* Linn). By Bessie K. E. Mossop, pp. 15-48.
- Nos. 3 to 12. pp. 49-183, 1922. \$1.05.
3. The fishes of the bay of Fundy. By A. G. Huntsman, pp. 49-72.
 4. A study of the ciscoes of lake Erie. By Wilbert A. Clemens, pp. 73-85.
 5. The food of ciscoes (*Leucichthys*) in lake Erie. By Wilbert A. Clemens and N. K. Bigelow, pp. 87-101.
 6. The Pacific herring. By C. McLean Fraser, pp. 103-111.
 7. On the development of the angler (*Lophius piscatorius*, L.). By C. J. Connolly, pp. 113-124.
 8. The composition of lobster muscle. By Sadie N. Boyd, pp. 125-131.
 9. Results of the Hudson bay expedition, 1920. I. The Foraminifera. By Joseph A. Cushman, pp. 133-147.
 10. Results of the Hudson bay expedition, 1920. II. The Gasterosteidae. By Philip Cox, pp. 149-153.

11. Diatoms from the Quill lakes, Saskatchewan, and from Airdrie, Alberta (including addendum, by A. H. Mackay). By L. W. Bailey, pp. 155-165.
12. List of publications based on results obtained at the Biological Stations of Canada, 1901-1921. Compiled by A. G. Huntsman and C. M. Fraser, pp. 167-183. 20¢.

(b) CONTRIBUTIONS TO CANADIAN BIOLOGY

(New Series)

Volume I. pp. 1-472. \$3.15.

Nos. 1 to 9. pp. 1-142, 1922. \$1.10.

1. A study of the lumpfish (*Cyclopterus lumpus* L.). By Philip Cox and Marian Anderson, pp. 1-20.
2. Results of the Hudson bay expedition, 1920. III. The echinoderms. By Austin H. Clark; with addendum by Hubert Lyman Clark, pp. 21-25.
3. Results of the Hudson bay expedition, 1920. IV. The Ascidiacea. By A. G. Huntsman, pp. 27-38.
4. Some physical and chemical factors influencing the distribution of marine flora and fauna in the strait of Georgia and adjacent waters. By A. T. Cameron and Irene Mounce, pp. 39-70. The oxygen content of waters in the strait of Georgia. By C. J. Berkeley, pp. 71-72.
5. A note on the relative chlorine, bromine and iodine content in the waters of the strait of Georgia, B.C. By A. T. Cameron, pp. 73-80.
6. The effect of marked changes in specific gravity upon the amount of phytoplankton in Departure bay waters. By Irene Mounce, pp. 81-93.
7. A new Hydractinia and other west coast hydroids. By C. McL. Fraser, pp. 95-100.
8. The circulation of the water in the bay of Fundy. I. Introduction and drift bottle experiments. By James W. Mayor, pp. 101-124.
9. The Quill lakes of Saskatchewan and their fishery possibilities. By A. G. Huntsman, pp. 125-141.

Nos. 10-18. pp. 143-376, 1923. \$1.75.

10. A preliminary list of Bryozoa (Polyzoa) from the Vancouver island region. By Chas. H. O'Donoghue and Elsie O'Donoghue, pp. 143-201.
11. Polychaetous annelids from the Nanaimo district. Part I. Syllidae to Sigalionidae. By Edith Berkeley, pp. 203-218.
12. The Hydromedusae of the west coast of North America, with special reference to those of the Vancouver island region. By R. Earle Foerster, pp. 219-277.
13. Rusty herring. By F. C. Harrison, pp. 279-284.
14. Ichthyological notes. By C. McLean Fraser, pp. 285-295.
15. The freezing of fish-failure and success. By F. Slater Jackson, pp. 297-302. 10¢.

16. Notes on the distribution of free-living Copepoda in Canadian waters. By A. Willey, pp. 303-334.
17. The larval stages and megalops of *Cancer amoenus* (Herbst). By C. J. Connolly, pp. 333-352.
18. The circulation of the water in the bay of Fundy. Part II. The distribution of temperature, salinity and density in 1919 and the movements of the water which they indicate in the bay of Fundy. By James W. Mavor, pp. 353-375

Nos. 19-25. pp. 377-472, 1924. 80¢.

19. Marine spore forming bacteria. By Dorothy E. Newton, pp. 377-400.
20. Urea in fresh and frozen grayfish. By C. C. Benson, pp. 401-407.
21. Larvae of the halibut (*Hippoglossus hippoglossus* L.) on the Atlantic coast of Nova Scotia. By Philip Cox, pp. 409-412.
22. The body temperature of fishes. By S. W. Britton, pp. 413-418.
23. An annotated list of a collection of fishes made by Francis Harper in the Athabaska region in 1920, to which is appended a list of species collected by Dr. R. T. Morris in the district between lake Winnipeg and Hudson bay in 1905. By William Converse Kendall, pp. 419-440.
24. A note on the polychaetous annelid *Eudistylia gigantea* Bush. By Chas. H. O'Donoghue, pp. 441-453.
25. On the summer migration of certain starfish in Departure bay, B.C. By Chas. H. O'Donoghue, pp. 455-472.

Volume II. pp. 1-539. \$3.50.

Nos. 1-14. pp. 1-326, 1924. \$2.35.

1. A bacteriological and chemical study of certain problems in lobster canning. By Guilford B. Reed and D. J. MacLeod, pp. 1-29.
2. An annotated catalogue of the diatoms of Canada, showing their geographical distribution. By L. W. Bailey, pp. 31-67.
3. Circulation and pollution of water in and near Halifax harbour. By A. G. Huntsman, pp. 69-79. 10¢.
4. Limiting factors for marine animals. 1. The lethal effect of sunlight. By A. G. Huntsman, pp. 81-88.
5. Limiting factors for marine animals. 2. Resistance of larval lobsters to extremes of temperature. By A. G. Huntsman, pp. 89-93. 10¢.
6. Limiting factors for marine animals. 3. Relative resistance to high temperatures. By A. G. Huntsman and M. I. Sparks, pp. 95-114.
7. The yields of insulin from fish. By N. A. McCormick and E. C. Noble, pp. 115-127.

8. A pathological anomalous thyreoid in the barn-door skate (*Raia laevis*). By W. C. M. Scott, pp. 129-134.
9. A quantitative determination of the number of survivors from planting 5,000 trout fry in each of two streams. By H. C. White, pp. 135-149.
10. The growth-rate of the scales in the sockeye salmon, *Oncorhynchus nerka*. By H. A. Dunlop, pp. 151-160.
11. The life-history of the shad (*Alosa sapidissima* (Wilson)) with special reference to the factors limiting its abundance. By A. H. Leim, pp. 161-284.
12. Polychaetous annelids from the Nanaimo district. Part 2. Phyllodoctidae to Nereidae. By Edith Berkeley, pp. 285-293.
13. The distribution of certain marine Ostracoda in the Canadian waters of the eastern coast. By Viola M. Davidson, pp. 295-306.
14. The gribble: a study of the distribution factors and life-history of *Limnoria lignorum* at St. Andrews, N.B. By Jean T. Henderson, pp. 307-325. 25¢.

Nos. 15-22. pp. 327-538, 1925. \$1.60.

15. The larval stages and megalops of *Rhithropanopeus harrisi* (Gould). By C. J. Connolly, pp. 327-334.
16. Studies in the ecology of the sockeye salmon (*Oncorhynchus nerka*). By R. Earle Foerster, pp. 335-422.
17. Natural history of the cunner (*Tautoglabrus adspersus* Walbaum). By Frits Johansen, pp. 423-467.
18. A review of the Cirripedia of the coast of British Columbia, with glossary and key to genera and species. By Ira E. Cornwall, pp. 469-502.
19. A note on the organic constitution of Pacific coast kelps. By C. Berkeley, pp. 503-506.
20. Rhizopoda and Heliozoa from British Columbia. By G. H. Wailes, pp. 507-518.
21. Desmidiaceae from British Columbia. By G. H. Wailes, pp. 519-530.
22. Tintinnidae from the strait of Georgia, B.C. By G. H. Wailes, pp. 531-539.

(c) CONTRIBUTIONS TO CANADIAN BIOLOGY AND FISHERIES

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3. BULLETINS

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13. Arctic ice on our eastern coast. By A. G. Huntsman, pp. 1-12, 1930. 15¢.
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38. Catch statistics of the British Columbia pilchard. By John Lawson Hart, pp. 1-12, 1933. 15¢.
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55. The American merganser in British Columbia and its relation to the fish population. By J. A. Munro and W. A. Clemens, pp. 1-50, 1937. 45¢.

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59. The chemistry and technology of marine animal oils with particular reference to those of Canada. Edited by H. N. Brocklesby, pp. 1-442, 1941. (Out of print; new edition in press.)
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67. Catch statistics of the British Columbia herring fishery to 1943-44. By A. L. Tester, pp. 1-47, 1945. 45¢.
68. Fishes of the Pacific Coast of Canada. By W. A. Clemens and G. V. Wilby, pp. 1-368, 1946. (Cloth bound \$2.00) (Paper bound \$1.50).
69. The haddock fishery of grounds fished by Canadians. By R. A. McKenzie, pp. 1-30, 1946. 30¢.
70. The smelt fishery of northeastern New Brunswick. By R. A. McKenzie, pp. 1-20, 1946. 20¢.
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86. Moricetown Falls as a hazard to salmon migration. By D. J. Milne, pp. 1-16, 1950. 20¢.
87. List of publications of the Fisheries Research Board of Canada (formerly the Biological Board of Canada), 1901-1949. Pp. 1-96, 1950. Free.
88. Eastern Arctic waters. By M. J. Dunbar, pp. 1-131, 1951. \$1.00.
89. Marine oils, with particular reference to those of Canada. Edited by B. E. Bailey; revised from Bulletin 59, with the editorial assistance of N. M. Carter and L. A. Swain; pp. 1-413, 1952; \$3.00 paper bound; 4.00 cloth bound.
90. The chum and pink salmon fisheries of British Columbia, 1917-1947. By William S. Hoar, pp. 1-46, 1951. 35¢.
91. The crab fishery off Graham Island, British Columbia, to 1948. By Robert G. McMynn, pp. 1-21, 1951. 25¢.
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1e. Mastigophora. By G. H. Wailes, pp. 1-45, 1939. 40¢.

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9. ANNELIDA.

9b. (1). Polychaeta Errantia. By E. and C. Berkeley, pp. 1-100, 1948. 80¢.

9b. (2). Polychaeta Sedentaria. By E. and C. Berkeley, pp. 1-139, 1952. \$1.00.

10. ARTHROPODA

10e. Cirripedia. By Ira E. Cornwall, pp. 1-49, 1955. 50¢.

5. STUDIES SERIES

(Not available for sale).

1. The Isopoda of the Bay of Fundy. By N. A. Wallace. *University of Toronto Studies, Biological Series*, No. 18, pp. 1-42, 1919.
2. Argulidae from the Shubenacadie River, Nova Scotia. By Charles Branch Wilson. *Canadian Field-Naturalist*, Vol. 34, No. 8, pp. 149-151, 1920.
3. Arctic Copepoda in Passamaquoddy Bay. By A. Willey. *Proceedings of the American Academy of Arts and Sciences*, Vol. 56, No. 5, pp. 185-196, 1921.
4. A new species of *Spirontocaris* with notes on other species from the Atlantic coast. By A. H. Leim. *Transactions of the Royal Canadian Institute*, Vol. 13, pp. 133-145, 1921.
5. Faunal notes from the Atlantic Biological Station (1920). By A. Willey and A. G. Huntsman. *Canadian Field-Naturalist*, Vol. 35, No. 1, pp. 1-7, 1921.
6. The success of reproduction in *Sagitta elegans* in the Bay of Fundy and the Gulf of St. Lawrence. By A. G. Huntsman and Margaret E. Reid. *Transactions of the Royal Canadian Institute*, Vol. 13, Pt. 2, pp. 99-112, 1921.
7. A further study of the respiratory processes in *Mya arenaria* and other marine Mollusca. By J. B. Collip. *Journal of Biological Chemistry*, Vol. 49, No. 2, pp. 297-310, 1921.
8. Retinal reflexes of narcotized animals to sudden changes of intensity of illumination. By A. T. Cameron and C. H. O'Donoghue. *Biological Bulletin*, Vol. 42, No. 5, pp. 217-233, 1922.
9. A new *Cyclocypris* from eastern Canada. By A. Brooker Klugh. *Transactions of the Royal Canadian Institute*, Vol. 14, pp. 337-342, 1923.
10. On the occurrence of manganese in the tube and tissues of *Mesochaetopterus taylori* Potts, and in the tube of *Chaetopterus variopedatus* Renier. By Cyril Berkeley. *Biochemical Journal*, Vol. 16, No. 1, pp. 70-77, 1922.
11. On a new heliozoon from Vancouver Island. By Chas. H. O'Donoghue. *Canadian Field-Naturalist*, Vol. 35, No. 6, pp. 101-102, 1921.
12. Notes on the nudibranchiate Mollusca from the Vancouver Island region I. Colour variations. By Chas. H. O'Donoghue. II. The spawn of certain species. By Chas. H. O'Donoghue and Elsie O'Donoghue. III. Records of species and distribution. By Chas. H. O'Donoghue. *Transactions of the Royal Canadian Institute*, Vol. 14, pp. 123-166, 1922.
13. On pentose compounds in tissues of marine animals. By Cyril Berkeley. *Transactions of the Royal Society of Canada*, Ser. III, Vol. 15, Sect. V, pp. 41-47, 1921.

14. An organic constituent of the tube of *Mesochaetopterus taylori* Potts. By C. Berkeley. *Journal of Biological Chemistry*, Vol. 50, No. 1, pp. 113-120, 1922.
15. The rate of growth of the sea mussel (*Mytilus edulis* L.) at St. Andrews, New Brunswick; Digby, Nova Scotia; and in Hudson Bay. By Bessie K. E. Mossop. *Transactions of the Royal Canadian Institute*, Vol. 14, pp. 3-22, 1922.
16. On the crystalline style as a possible factor in the anaerobic respiration of certain marine mollusks. By C. Berkeley. *Journal of Experimental Zoology*, Vol. 37, No. 5, pp. 477-488, 1923.
17. The source of insulin. A study of the effect produced on blood sugar by extracts of the pancreas and principal islets of fishes. By J. J. R. Macleod. *Journal of Metabolic Research*, Vol. 2, pp. 149-172, 1922.
18. The Islands of Langerhans in elasmobranch and teleostean fishes. Part I. The Islands of Langerhans in the skate. By Slater Jackson. *Journal of Metabolic Research*, Vol. 2, Pt. 1, No. 1, pp. 141-148, 1922.
19. Marine wood borers in British Columbia waters. By C. McLean Fraser. *Transactions of the Royal Society of Canada*, Ser. III, Vol. 17, Sect. V, pp. 21-28, 1923.
20. The influence of tidal oscillations on vertical circulation in estuaries. By A. G. Huntsman. *Transactions of the Royal Society of Canada*, Ser. III, Vol. 17, Sect. V, pp. 11-14, 1923.
21. The importance of tidal and other oscillations in oceanic circulation. By A. G. Huntsman. *Transactions of the Royal Society of Canada*, Ser. III, Vol. 17, Sect. V, pp. 15-20, 1923.
22. The distribution of pentose compounds in the pancreatic tissues of the ling cod (*Ophiodon elongatus* Girard). By C. Berkeley. *Journal of Biological Chemistry*, Vol. 58, No. 2, pp. 611-616, 1923.
23. An approximative colorimetric method for the determination of urea, with an application to the detection and quantitative estimation of arginase. By Andrew Hunter and James A. Dauphinee. *Proceedings of the Royal Society* [London], B, Vol. 97, pp. 209-226, 1925.
24. The distribution and structure of the Islands of Langerhans in certain fresh-water and marine fishes. By N. A. McCormick. *Transactions of the Royal Canadian Institute*, Vol. 15, Pt. 1, pp. 57-81, 1924.
25. Quantitative studies concerning the distribution of arginase in fishes and other animals. By Andrew Hunter and James A. Dauphinee. *Proceedings of the Royal Society* [London], B, Vol. 97, pp. 227-242, 1925.
26. The effect on the blood sugar of fish of various conditions including removal of the principal islets (isletectomy). By N. A. McCormick and J. J. R. Macleod. *Proceedings of the Royal Society* [London], B, Vol. 98, pp. 1-29, 1925.

27. Ecological photometry and a new instrument for measuring light. By A. Brooker Klugh. *Ecology*, Vol. 6, No. 3, pp. 203-237, 1925.
28. Some new or rare Protozoa from British Columbia. By G. H. Wailes. *Annals and Magazine of Natural History*, Ser. 9, Vol. 16, pp. 40-48, 1925.
29. The effect of light of different wave-lengths on the rate of reproduction of *Volvox aureus* and *Closterium acerosum*. By A. Brooker Klugh. *New Phytologist*, Vol. 24, No. 3, pp. 186-190, 1925.
30. A list of the nudibranchiate Mollusca recorded from the Pacific coast of North America, with notes on their distribution. By Chas. H. O'Donoghue. *Transactions of the Royal Canadian Institute*, No. 34, Vol. 15, Pt. 2, pp. 199-247, 1926.
31. Investigation on the tensile strength of strips of haddock muscle before and after various treatments. By J. C. Forbes. *Transactions of the Royal Society of Canada*, Ser. III, Vol. 20, Sect. V, pp. 145-153, 1926.
32. The causation of diatom maxima. By Viola M. Davidson and A. G. Huntsman. *Transactions of the Royal Society of Canada*, Ser. III, Vol. 20, Sect. V, pp. 119-125, 1926.
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